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Clerk's File Copy

THE MAGNAVOX COMPANY, et al.,

Plaintiff,

vs.

CHICAGO DYNAMIC INDUSTRIES, et al.,

Defendants

No. 74 C 1030

and

74 C 2510 .

Before the Honorable JOHN F. GRADY,
Judge

Monday, January 10, 1977

2:45 p.m.

Parties met pursuant to recess.

PRESENT:

MR. ANDERSON
MR. WILLIAMS

MR. GOLDENBERG
MR. RIFKIN

FILED

MAR 2 - 1977

H. Stuart Cunningham, Clerk
United States District Court

THE CLERK: 74 C 1030 and 74 C 2510, Magnavox v Chicago Dynamics, case on trial.

MR. ANDERSON: Good afternoon, your Honor.

ARTHUR W. HOLT,

called as a witness by the defendants herein, having been previously duly sworn, was examined and testified further as follows:

CROSS-EXAMINATION (Continued)

BY MR. ANDERSON:

Q Mr. Holt, assume some mythical person who knew of the '480 patent disclosure and who knew of the computer demonstrations like Michigan pool. In what reference do you find a circuit for causing a ball to bounce off of a player-manipulated symbol like a paddle?

A The computer-driven games, of course, had circuits for doing that.

Q Do you find in any one of the computer-driven games a circuit for causing a ball to bounce off of a player-manipulated symbol like a paddle?

A The computers certainly were circuits. Yes, I would find them. If you will permit me to draw you the diagram of a computer, I will point out the places where this would have occurred.

Q Was any such circuit, from your reading of

this record, shown at any of the computer demonstrations that are in the record, for causing a player-manipulated symbol like a paddle to cause a ball to bounce?

A The circuits for general purpose computers were quite well known to these people, and in general they contained memory, arithmetic units, and other standard functions of what we call the von Neumann computer, which is an esoteric way of expressing the new type of computer that these were.

This type of computer, of which MIDSAC and SEAC and FLAC, and, as a matter of fact, the Princeton computers and Rowan computers and all of our modern computers are of this type, were quite well known. The circuits vary in detail from each other, but their function is pretty well known.

Q Was there any circuit that you know of in any of these demonstrations that was actually used for causing a ball to bounce off of a player-manipulated symbol like a paddle in any of the demonstrations?

A The fact that the MIDSAC demonstrated bouncing balls off of hitting spots is, as a matter of fact, a reasonable way of giving notice to other people that such things can be done. I think that is really all that is necessary here.

Q Your answer to my question, then, if I understand it, is no, am I correct? There was no demonstration in any of the prior art of a ball bouncing off of a player-manipulated symbol like a paddle?

A The question here about '507 is a hitting symbol and a hitting spot, and it hasn't any relationship to a paddle.

Q Can you just answer my question, Mr. Holt? Just answer my question.

A I don't think any of the pool games talked about a paddle. It talked about a cue in the case of Michigan pool, a cue and cueball, those were the hitting spots and the balls.

Q And last week you and I agreed, did we not, I think, that the cue was not manipulated during the movement of the balls on the screen?

A We agreed that during the game the cue, as a matter of fact, could be moved many times.

Q And nothing would happen?

A Not.

Q It had no movement?

A It is a question of what you call "the game". In a game where the player is going to aim the cue many times, then he has a control of this a number of times during the game.

Q Now, in the computer games, where there was a demonstration of balls bouncing, wasn't that controlled by

the software of the computer program?

A Yes.

Q Not by a circuit as such? Is that right?

A The software is a means of describing to the circuits what they should do at any one instance, so they work in conjunction.

Q Is there any published record of the software in any of the demonstrations that is in this record before the Court?

A I believe that Mr. Brown has a pretty adequate description of what his software was and a good description of his hardware, furthermore.

Q Was that work on any computer other than the MIDSAC computer that was junked shortly after 1954?

A The flow of diagrams would have been, could have been, interpreted fairly easily, to read, for example, on SEAC.

Q From that are you saying someone could have created a program?

A The MIDSAC orders were very similar to the SEAC orders. We had three and four address systems on there, and, as you realize, MIDSAC was a daughter of SEAC. SEAC did continue on working for a longer time, but with a minimum of change, and we actually had more memories than they did, more high speed memory. That would be not a problem.

Q Now, you have said there was no player-manipulated paddle causing a ball to change direction in any of the prior art references. Apart from your speculation, in what reference in the record do you find even a suggestion of a ball direction being changed by a player manipulating a symbol in the nature of a paddle in the games in suit, if any, and where could you find that specific suggestion, in what reference?

A The cue in Michigan pool is certainly analogous to the paddle. It wasn't called a paddle. I will grant you that.

Q But the cue didn't have to be near the cue ball, isn't that right, and the cue ball would take off when you press the button?

A The answer is that hitting spot and a hit spot were both shown in the Michigan pool, and that is

what we really are discussing.

Q Now, Mr. Holt, are you trying to say that a cue that might be anywhere in the screen is like a player-manipulated paddle that has to engage the ball in order to prevent the opponent from scoring a point? Is that your testimony?

A Would you repeat the question, please?

MR. ANDERSON: Read it.

Q (Read by the reporter.)

BY THE WITNESS:

A I think my testimony is that the appearance of them is certainly different. Nevertheless, for the points we are arguing, they amount to the same thing.

BY MR. ANDERSON:

Q Is there any detection of coincidence between the cue that you said is like our hitting symbol or paddle, and any other symbol on the screen in the Michigan demonstration?

A When the player has manipulated the cue to the angle and position he desires, he then, as I remember from the deposition, pushes a button, and that then causes the cue ball to effectively have been struck or moved at the angle indicated by the cue itself.

Q That is irrespective of where on the picture the cue is, is that correct?

A We have been over this very clearly last week.

Q I just want to be clear.

A And I tried --

Q Just say yes or no.

A The point of the cue in that game did not have to touch the cue ball. But the angle of the cue stick was important, and there were many hitting spots in that game, and hit spots.

Q Now, Mr. Holt, you have read the record about the RCA demonstration on the Spectra 70/25, have you not?

A Yes, I have.

Q It is a fact, is it not, that RCA was probably the largest television receiver manufacturer in the United States in 1967?

A I don't know for sure, but they were certainly close to it.

Q And they also had an active computer business and were making and trying to sell the Spectra 70/25 at that time, isn't that correct?

A I regret to say they went down the drain shortly after.

Q Are you at all familiar with the David Sarnoff Research Center in Princeton operated by RCA?

A I believe I visited once a long time ago.

Q Is it a fact that they have a very substantial number of highly skilled engineers at the David Sarnoff Research Center?

A Yes.

Q Highly skilled engineers in the art of television receivers?

A Yes.

Q And also at that time in 1967 they had highly

skilled engineers in the art of computers?

A Yes.

Q Now, those enginers, at least some of them, would have been well above this middle-skilled engineer whom you described as the ordinary man skilled in the art of electronics, isn't that a fact?

MR. GOLDENBERG: Your Honor, that clearly is inviting hearsay from the witness.

Now, the witness' earlier testimony with respect to this matter related to people he was supervising in his own laboratory in 1967.

THE COURT: The inference one is invited to draw from that, though, is that the comments are of general application.

He can testify to the level of the art.

Overruled.

THE WITNESS: Would you repeat the question, please?

BY MR. ANDERSON:

Q These skilled engineers in the fields of computers and television receivers at the David Sarnoff Center, at least some of them, were extraordinarily skilled, were they not, well above the middle-skilled engineer that you testified was the ordinary man in the electronic art?

A It is fair to say that there really were some bright guys in there, yes.

Q And also highly specialized in their respective fields of television receivers and computers?

A Well, some of them were so specialized, they didn't talk to each other.

Q At the 1967 25th Anniversary demonstration, have you looked at the documents of record with respect to that?

A Yes.

Q Isn't it a fact that at that demonstration, they demonstrated both their works in the computer field, including the demonstration of pool, and also their works in television engineering and advances in the television art?

A Yes, I believe that is so.

Q Isn't it a fact that in spite of all of that, RCA used an IDI X-Y plotter display to demonstrate their pool and not a television receiver and not a RCA television receiver?

A I believe the reason was that they had already bought their IDI machine for other purposes.

Q It cost \$50,000, is that right?

A In those days, and it was one of their jobs to expand the use of computers into graphic arts. They were interested in expanding the use of their computers for drawing pictures, architectural drawings, and things like this. Their object was not to spend money to play pool at that time. One of the objects of that group was to expand the application of their machine, and there is quite a bit of testimony in there about the fact that they examined a number of display devices.

These were display devices which were made by

other people and that could be interfaced readily with their machine.

When you are going primarily into a graphics application, a point to point display is really more applicable for graphics.

I think they bought it for other purposes. They had it there, and they wanted a demonstration so they said, "Let's do it."

Q The demonstration that they wanted to give was a demonstration of the computer and of the graphics, is that correct?

A They were interested in selling their computer, and they wanted to show that they had graphic capacity in the computer; but the graphics terminal was not designed or manufactured by RCA.

Q Of all the extraordinarily skilled men at RCA at that time, isn't it a fact that there is no suggestion in this record of taking the output of the Spectra 70/25 computer and displaying it on a television receiver at RCA?

A I don't remember seeing any.

Q Is it not also a fact that in the record with respect to the RCA situation in 1967, RCA prepared a white paper, so to speak, a report on the use and the application of computers in the home?

A I think there was some reference to that. I don't

remember very much of that in detail.

Q Isn't it a fact that these extraordinarily skilled people who prepared that report speculated it would be five to ten years before there could be the hardware necessary for such an application of computers in the home?

A I really think they were thinking about general purpose computers.

Q Didn't that report specifically mention the possibility of displaying games of some sort in the home using this report and the work that was discussed in it for the future?

A My memory is getting a little vague on that now.

Q Is there anything in that report, to the best of your knowledge, that even suggests that RCA, the leader in the television receiver field, might use the 60 million, or whatever it was, television receivers in the homes in the United States for cooperative use with their computers?

A Again, really I have a feeling that they were mentioned, but I can't cite chapter and verse on that.

Q I will hand you the book which defendants have put in, called "RCA Computer Pool Game", Defendants' Exhibit 13, and I will turn to Tab 11 in that book, which is entitled "Computer in the Home Study", by L. J. French and A.H. Teeger, dated April 7, 1967.

Mr. French and Mr. Teeger were involved in

that demonstration, I think, at the Research Center in 1967, were they not?

A I think they might have been.

Q I would like you to point out where in there there is any specific mention of a use of a television receiver in the play of a game?

(There was a brief interruption, after which the following proceedings were had herein:)

BY THE WITNESS:

A I see under "Applications for System 6" it says, "TS--" the display that is on page 4. TS, I assume, means time sharing with the display. That is the first.

The rest of them said, "No display," with an exclamation point.

BY MR. ANDERSON:

Q That is no reference to a television receiver any more than it is a reference to the X-Y plotter, is that correct?

A I haven't so far seen -- I am on page 6 -- I haven't seen any TV receiver mentioned here.

I see on the top of page 6, item 2, "Display (Simple static games could be done via storage tube)."

Q That is no reference to a television receiver?

A That is not a television.

I would have to say that I did not study this particular section. I am looking through it now for the first time. Sorry about that.

Q Your testimony is you have never seen this document before, Mr. Holt?

A This particular one, "Computer in the Home Study", I don't believe I have seen before.

On page 9, under item 2, "Display, the simpler non-dynamic games could be done on a storage tube," again, so we have at least three references to a storage tube, which is not a television tube.

THE COURT: Are you familiar with this document, Mr. Goldenberg?

MR. GOLDENBERG: Yes, I am, your Honor.

THE COURT: Perhaps we could agree on whether it is or isn't in there and save time. The witness is trying to read something for the first time and decide whether there is something in there.

MR. GOLDENBERG: Your Honor, TV set is not mentioned in there, but monitor is. If we can shorten this up, on page 7 is the first mention of a monitor.

(There was a brief interruption, after which the following further proceedings were had herein:)

MR. ANDERSON: Perhaps we could save some time. Could we agree that is not necessarily a television monitor, Mr. Goldenberg?

MR. GOLDENBERG: Mr. Anderson, the problem I am having right now, sir, is I don't remember too well what the witness has said specifically about

this, and there was examination on the point.

I just don't have it in my mind right now what the testimony was.

I do know that there was testimony that a display was contemplated, and they list a number of games, all of which have something to do with the visual display.

BY THE WITNESS:

A I do think they were contemplating using the computer in a time sharing mode, implying that they are going to be using a large scale general purpose computer rather than a single purpose special computer.

BY MR. ANDERSON:

Q Have you completed your study of the document?

A I am working through it. I think I am probably quite reasonably going to miss some parts, but would you like to direct my attention to some part of it?

Q No. I don't think there is anything in there, Mr. Holt.

Mr. Holt, at page 12, though --

A I see the word "monitor" on page 12, but it doesn't show me very much.

Q Also on page 12, Mr. Holt, under System VI, "Phone link to TS computer with display," under "6, costs", it says:

"A. Hardward developments (innovations required):

1. Cheap data set.
2. Cheap display."

Does that indicate that there was no display that they considered available at that time that was inexpensive for use with their proposed home computer units?

A I am sorry. I have no way of reading into this what they might have meant. And seeing that this is the first time that I have seen it, I am not too sure what it even says here yet.

Q All right. Mr. Teeger testified, and he is the RCA man, one of these two people who authored this document, that he saw a billiards demonstration and decided to make up a pool demonstration, and even so it took him 120 days, according to the testimony, is

that right? Do you recall that?

A If it is important, I would like to look at the testimony. 120 man-days of programming time doesn't seem unreasonable to me on that machine.

Q That is just to make up a demonstration of the pool game, is that right?

A Yes.

Your Honor, this is an interesting thing. What that amount of time is is the conversion of a general purpose machine into a special purpose machine, and if you could get away with 120 man-days in building the hardware box -- for example, Odyssey itself -- you would think that was a very short amount of time to build a box.

So that the conversion of the general purpose machine into a special purpose machine generally takes less time and money, therefore, to engineer than building the special machine all by itself, unless you are going to mass produce them.

When you are going to mass produce them, your Honor, then you make a special purpose machine and make it very cheap, and then you can just stamp them out.

So 120 man-days seems like a reasonable programming time, and I think it took much longer than that to design, say, the Odyssey, the first Odyssey machine.

Q This is writing a software program? There is no software program involved in either the accused games or the patents, is that true?

A The program is essentially replaced by wires.

Q You are saying that they had to also construct some sort of wired equipment to demonstrate the RCA computer with pool, is that correct?

A The Odyssey 1TL 200, for example, had program cards in it, actually, which selected the games.

Q These were little printed circuit cards that would go from game to game.

A Yes. That kind of program is additional to the wires inside of it.

Q It created hard wires through the printed circuit?

A Right.

Q Not software?

A Software is characteristically softer than hard wires. They can be changed more easily.

Q They are just instructions, aren't they?

A Yes.

Q They are not even soft wires now.

A The printed circuit that you are plugging in, you could claim that was a program. It is not the same as writing out a program that one would put in a general purpose computer. But these cards that are plugged in are a form of what you

might even call firmware, to get halfway between hardware and software.

Q Mr. Holt, you have speculated that some person of what you consider ordinary skill in the electronic art could have put together the demonstration units and the '480 and added the movable paddles to intercept and change the direction of the balls, am I correct? That is your testimony as of 1967?

A I believe that was my testimony.

Q How did that ordinary man have knowledge of Michigan pool, the pool demonstration on the Michigan MIDSAC computer, or the RCA circuitry or program or program for Michigan pool or the program for Space War or the '480 patent application disclosure?

MR. GOLDENBERG: Your Honor, I object to this question, because in the hypothetical given to Mr. Holt with respect to that matter he was asked to assume that the man had knowledge, and indeed the law charges that man with knowledge.

Now, this question is an invitation to Mr. Holt to speculate about whether or not Mr. Baer, for instance, who was named as the patentee in the '480 patent, in fact knew about Michigan pool or RCA pool, and that is just not an issue in this lawsuit.

The law says he is charged with that.

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Holt - cross

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MR. ANDERSON: I disagree wholeheartedly.

THE COURT: Isn't it a matter of what would have been obvious rather than what is obvious? The very use of the subjunctive mood, it seems to me, assumes a hypothetical situation if the man has all the data.

MR. ANDERSON: But he only has data within his art. The electronic man does not necessarily, and we contend he would not, have knowledge of the program for displaying pool on the Michigan computer or the program for a demonstration of RCA, and he would not have knowledge of the '480 disclosure, because the electronic ordinary man was not a specialist in computers or would not have any special skills in computers, and this witness has said that though he might have done one computing project, or something of that sort --

THE COURT: Don't you always have that problem -- it would seem to me you would have -- where you are dealing with a special invention? I suppose these things are always esoteric to some extent. They are not known to the entire spectrum of the trade or the art. That is why I think Mr. Goldenberg is correct, that you have to start out with the assumption that this man of average experience and capability in that art is presented with these facts.

Now, would this invention have been obvious to him?

You are arguing with the definition of what the art is. I understand that. But I am

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not sure this is where you would get at that.

MR. ANDERSON: In addition to that, your Honor, the definition of the art, "electronics", has been phrased so tremendously broadly that we now are, and I would like to ask the witness, the specific items of the whole world of the computer art and the electronic art and perhaps game playing art, were distilled down to present to this electronic man who was looking at the universe of electronics.

THE COURT: I think you are entitled to cross-examine on his statement of what the relevant art is. I am wondering if there is a culprit here, if I might not have been partly instrumental in this definition.

It seems to me I am the one who said, "Is it chemistry or electronics?"

I was not necessarily implying that it should be either, that it should be that broad, and the witness shortly thereafter came up with the art of electronics.

In any event, I am going to let you go into what the relevant art is.

I am going to sustain Mr. Goldenberg's objection.

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BY MR. ANDERSON:

Q Mr. Holt, you testified that the art which you thought was governing here, in which we were to look at the skill of the ordinary man in the art, was electronics, is that correct?

A Yes.

Q Not computer programming, and not computer technology, but electronics?

A Well, most of the computer engineers have done programs. Initially --

Q Computer engineers? How about the average electronic engineers, the middle-skilled electronic engineer?

A Well, the type of people that were in Sanders and the type of people that were in my place were certainly people who were display and computer oriented. In 1963, certainly through 1966 Sanders was very heavily in the cathode ray tube display business, first for military applications and then they came out with the 720 display in 1966, so that the people in Sanders were well acquainted with display arts and cathode ray tubes and displays that had a lot of similarity to what came out in the games.

Q Your place was a high technology area, or so you said on direct?

A I would say that Sanders was working and had high technology people, too.

Q So neither of them would represent the man of the ordinary skill in the art?

A On the contrary.

Q In the art of electronics, Mr. Holt.

A Excuse me. In a laboratory such as Sanders -- now, I haven't visited there. I don't think I have ever visited there.

Q What is the basis of your testimony if you have never been there?

A However, I have good reason, having read literature, which tells me what as a matter of fact was produced there, to estimate that the people who work at Sanders were well familiar with computers and well familiar with the display units, and, as a matter of fact, I have a description of the Sanders 720 unit, which did come out commercially in 1966, having been shown in prototype form before that year.

Q Mr. Holt, am I correct that the Michigan demonstration, as far as this record shows, was a single demonstration on one weekend and never was repeated after that as far as is known?

A I think that is true, but you must remember that

Holt - cross

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people don't forget, and it was published, furthermore.

Q Was the program ever published, Mr. Holt?

A I think that in those days you would find that any other guy worth his salt wouldn't have copied Bill Brown's program even if he had it.

Q It was not published?

A Because he would want to do it himself. It was a game.

Q It was not publicly available, is that correct?

A I don't think the program -- it is very doubtful the program was published.

Q With respect to the RCA demonstration, that also was a single occasion, one weekend, when they had that demonstration, and there was some testimony that they made a film several months later. But the demonstration as such, the public demonstration, was never repeated, as far as this record shows.

A It was leaked to the BBC, as I remember.

Q There was no evidence that it was used by the BBC, is there?

A No. Just that the film was made by the BBC, I think.

Q And that program, or how to accomplish that program, was never published, as far as you know, am I correct?

A It is very doubtful the program itself was published.

Holt - cross

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As I say, the challenge in those early days to the engineer or the pseudo-programmer was, "Hey, I bet I can do that, too."

Q Now, RCA, in order to do this demonstration, built a custom interface to connect their \$50,000 display to their \$90,000 computer, is that correct?

MR. GOLDENBERG: Your Honor, I object to the form of that question, because the premise is quite factually incorrect.

The interface, as you will see in the testimony, was built in connection with this computer of graphics work that they were doing, and this display device had been on board for some substantial period of time.

If Mr. Anderson believes I am wrong on this matter --

MR. ANDERSON: The interface was a custom interface built to connect up these two pieces of equipment, right?

MR. GOLDENBERG: Not for the purpose of this demonstration, Mr. Anderson.

BY MR. ANDERSON:

Q The interface was used in this demonstration, isn't that right, Mr. Holt?

A From my reading of that testimony, they did use that interface.

Q There is no one, as far as this record shows, who knows what was in that interface, is that correct?

A I could sketch up for you what it probably was.

Q You don't know what it was and the record doesn't show?

A If you would like to go up to the blackboard with me, I think I could work that out for you.

Q But you would be speculating?

A I would show you at least six different ways of doing it that would have been available at that time.

Q Certainly this man of ordinary skill in the electronics art would not have known the tricks that Mr. Brown, an electrical engineer, said that the

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computer programmer had to use to make Michigan pool a workable demonstration, am I right?

A His problem, I think, was just fitting it in his available memory space. That was the major problem here as I can tell.

Remember, in those times there weren't a whole lot of programmers either in 1954.

Q Mr. Holt, in Tab 3 of the defendants' book entitled, "RCA Computer Pool", there is a list of dignitaries and their companies who attended the demonstration. That is a list of people of various extraordinary qualifications in the electronics field, is it not?

A Do you wish me to look at the names and see if I recognize the names?

Q See if you recognize any of them.

MR. GOLDENBERG: Your Honor, he may recognize the names; he may not. I am willing to stipulate that these are people, in many cases of international reputation, who had achieved great distinction in industry, government, and --

MR. ANDERSON: And in the electronics industry.

MR. GOLDENBERG: -- and in the halls of academia.

I don't know why we should take up this

witness' time and the Court's time with this kind of thing.

MR. ANDERSON: Also representatives of several television receiver manufacturers?

MR. GOLDENBERG: There were representatives of several television receiver manufacturers.

BY MR. ANDERSON:

Q To the best of your knowledge, Mr. Holt, did any of the people who had the knowledge that you are charging the ordinary man with having put it together and make a raster scanned television game that this record shows prior to the work of the Sanders group in 1967 and '68, or isn't it a fact that they were the first ones who did that as far as this record shows?

A Can I have the question again, please?

MR. ANDERSON: Sure. I will have it read.

Q (Read by the reporter.)

BY THE WITNESS:

A I think I would agree with that.

MR. ANDERSON: Your Honor, that completes the cross-examination.

REDIRECT EXAMINATION

BY MR. GOLDENBERG:

Q Mr. Holt, do you have any knowledge at this moment of whether or not either of the patents in suit discloses any kind of pool or billiards game?

A Yes, sir, I believe '507 makes some remarks in the specification about a game of billiards.

I don't have '507 up here.

Q Do you have the '284? The disclosure is the same, sir.

A I have '284, but sometimes there were a couple of examples where it wasn't the same. '284 I have, yes.

(There was a brief interruption,
after which the following further
proceedings were had herein:)

THE WITNESS: I think I can find it, but it
may take a few minutes.

BY MR. GOLDENBERG:

Q I have located it in the '507 patent in column 18.

A Yes, I am getting close to there. I am looking at '284. I better look at '507.

Q All right, sir, let me show you column 17 and 18 of the '507 patent.

A Yes, on column 18 of the '507 patent, we do

have, from line 30 to line 39, where it says:

"In another example cushion billiards can be played. The player's balls are on straight control joy sticks (see Fig. 9B). Third ball is hit using control of Fig. 11A. Wall bounce is used on all four sides. Player hits a third ball. The latter must hit at least one cushion first and then hit opponent's ball to score a point.

For skilled players, the third ball must hit two cushions first; and the game can be elaborated to three cushion billiards."

Q Is there any kind of relationship in your experience between billiards and pool?

A Yes, they are played with round balls and with a cue and a very similar kind of table. As I remember, billiards does not have any pockets.

Q In the billiards game -- in the billiards game; actually, there are billiards games -- disclosed in the patent, is that a game where a ball is hit with a paddle?

A No, it is hit with a cue stick. It is a hitting spot and a hit spot certainly, as I have been saying all along. It doesn't look very much like a paddle.

Q Drawing on your recollection of what you understand about Michigan pool and RCA pool, is it correct that the cue ball was put into motion in some fashion, is that correct?

A Yes, in both those games.

Q It is different in each game, is it not?

A Yes, we have talked for a long time about the Michigan pool. The RCA cueball was actually put into motion with a light pen, if you remember the picture.

Q Once the cueball was put into motion, I would take it during the play of the game, it hits other balls, is that correct?

A That is correct, yes.

Q Do you consider the cueball a hitting spot under those circumstances?

A Yes, I do.

Q Do you consider one of the other balls a hit spot?

A Yes, and not only that, then other balls as a matter of fact become hitting spots themselves as they progressively go down the line.

Q In response to questions from Mr. Anderson about if one wanted to use a raster scan display on the Michigan pool game, I believe he got your agreement that the signals that would be used to display the balls would have to be synchronized with the horizontal and vertical sync signals of the raster scan, is that correct?

A That is correct, and interestingly enough, those same signals have to be provided in the plaintiff's game, too.

Q Do you know of any patent in the prior art, as you have been told what is prior art, which generates movable symbols on a cathode ray tube where they are synchronized using the raster scan and where there is synchronism with the horizontal and vertical sync signals, giving you the raster scan?

A '480 is an example of that.

Q In response to a question from Mr. Anderson, I believe it was your testimony that you do not believe that the '480 patent disclosed any means for automatically moving a spot about the screen of a television tube.

Have you had a chance, sir, to look at that patent and determine whether or not your answer was correct in that respect?

A Yes, sir, I have, since re-reading the patent, found a description of automatically moving the dots.

In column 12 of the '480 patent, line 61 --

this is the '480 patent.

Q Could you read that, sir?

A Column 12, beginning at line 61:

"Alternatively, the target may be automatically moved by, for example, driving the biasing voltage for the delay and pulse forming circuits in a dot generator with a variable voltage source."

It says automatically in this, and I missed that in my earlier testimony.

Q Looking at Fig. 12A of the '507 patent, is there a variable voltage source in that patent for automatically moving the ball?

A Yes, there is.

Q Could you state what it is?

A There are several. Player A -- well, for moving the ball?

Q For automatically moving the ball..

A For automatically moving the ball, the flip-flop generates voltages which automatically move the ball, flip-flop 122.

Q Is that kind of device, that mode of operation described by what you just read in the '480 patent?

A It certainly is very, very similar. They are both automatic methods for moving the ball.

Q Do they both use variable voltage source?

A They both use variable source.

Q Is that true of the '598 patent, Plaintiff's Exhibit 90?

A Yes, we see the same type of flip-flop and variable voltage source in Fig. 12A of '598, which is a means for automatically moving the ball.

Q I believe you were asked questions, sir, about the clock oscillator in the defendants' games; do you recall that?

A Yes.

Q You were asked questions about the relationship of that device to the horizontal and sync generators as disclosed in the patents; do you recall that, sir?

A Yes.

Q Could you tell me what, if any, differences there are between that clock oscillator circuit and the horizontal and vertical sync generator, as disclosed in the patents in suit?

If you would like to have it at hand, we can give you that drawing to aid you in your explanation, or do you have it up there?

A No, I do not have -- yes, I have Paddle Ball, Fig. 91A.

Q All right, that is Plaintiff's Exhibit 91-A.

A The major difference, your Honor, is that in the plaintiff's game, the horizontal sync generator can be thought of as an oscillator. It is going about 15,000 times a second, putting out a pulse about 15,000 times a second.

The time distance between those pulses is the length of time it takes for the beam to cross the television one time. The television sweep flies back, and then another trigger comes along.

This is what is going on there. That oscillator is essentially working putting out pulses at about 15,000 times a second.

The clock in the defendants' circuit, sir, runs much faster than that. It runs at a rate so that it counts down. It counts approximately 276 pulses of this high speed clock before it comes out with a horizontal synchronizing pulse, similar to that.

That is all the difference. It is a digital circuit which is done with a totally different means and the operation is different. The results are pretty close, except that the digital circuits are more stable, and in some other respects they are cheaper.

Q With respect to the Michigan pool game, suppose one wanted to play a game where you didn't have 15 --

actually 15 balls -- but a simple kind of pool game where you just had three spots or dots or balls, or call them what you will.

Would this problem about slow speed during the initial break be a problem in a more simple version of that game?

A No, I believe that it would not be a problem.

Q Could you state why, sir?

A The number of calculations -- well, you have 15 balls, so the number of calculations is 15 times 14 times 13 times 12, and each one of these takes time.

If each one of them is going to hit every other one, it gets to be a lot of calculations and it goes up a lot faster than the number of balls goes up. Another way of saying it is if you bring the number down, the number of collisions goes down much faster than the number of balls goes down.

So we would have a very, very drastic reduction in the number of computations required for each frame if we reduced the number of balls from 15 to 3.

Q Sir, could you turn to Defendants' Exhibit 13, Tab 11, which is the RCA document entitled "Computer in the Home Study"?

A I don't have that any more.

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(There was a brief interruption,
after which the following further
proceedings were had herein:)

THE WITNESS: I have this now in front of me.

BY MR. GOLDENBERG:

Q Suppose, sir, it was your intention to commence in 1967, now, based on your understanding of what was available in the art and skills of people in the art, suppose it was your intention to provide a home device--and here I direct your attention to page 4 -- to play 24 different games, also to have educational applications, as for instance teaching foreign languages, helping with spelling and reading, have home financial applications, as for instance checkbook maintenance, helping with your income tax, recipes, and do a number of other things.

Do you find it unreasonable that someone might require at that time 5 to 10 years to bring such a device into the market at a price of \$7,000 or thereabouts?

A No. I don't find that unreasonable. This is really a general purpose computer, and it has to be if it is going to do all of these things and whistle, too. That is an old joke.

But certainly in order to be this versatile, as you have described it, it would call for a general purpose computer.

They are clearly expecting to time share this with many home displays, and consoles of some type.

Q Do you see any differences between a device having that kind of versatility and a device that lets you bat a

ball back and forth across your TV screen?

A Well, I think there has got to be a distinction between something that can trade answers with you back and forth on your income tax and something which can bat a ball back and forth.

Now, you can trace the evolution of one into the other, but it has to be a lot more complex, obviously, a machine in order to do this kind of thing that you are talking about than to play one or three ballgames, for that matter.

Q Do you believe that the digital computer art is relevant or is related to the subject matter of this litigation as you understand it?

A Well, for a couple of reasons. One is the philosophical points about the hitting spot and the hit spot, which were initiated first by people with big computers, and, second of all, the circuitry which has come down through the digital computer business and down through the next 25 years and really has ended up by focused, if you will, into a special purpose computer, which the defendants' game surely is.

Q What is the relationship between that and the display art, if that term has any meaning to you?

A Well, displays, I suppose, really start along about 1927 and shortly thereafter, and Alan B. DuMont made a cathode ray tube oscilloscope shortly after that, and practically that would be from 1930 to 1940.

Along about 1939 the radar business came along, and it was very important to have displays there, which did use some very clever cathode ray tube devices.

We then found that the cathode ray tube had great significance in the television, which began, and was born, really, about 1940 and was given to the public at commercial prices in the 1950s.

There are many types of displays, of course, of which the cathode ray tube and the television tube are only one.

We have for example the new types of gas discharge displays, which have their place in computer technology.

We have laser displays, which are driven by mirrors, and these come down --

Q Mr. Holt, unless you feel it necessary to complete your answer, I would appreciate it if you would confine your answer to the things which are a matter of concern in this case.

A Well, the display business really, as an output of computers, came along, and, as I say, was first used in the graphics business, which is point to point plotter. Then later it was used in the late 1960s, the middle and late 1960s, for character alpha-numeric shaped output of computers. At that time it became almost indistinguishable from a television set. It was that kind of display that was using equipment very close to that.

Q Could you briefly tell the Court the changes in the computer technology in the period from 1954 to 1966, 1967, indicating what was available to the engineer working in computer technology or in display technology at the end of that period?

A In the early 1950's computers were huge and cost a lot of money and occupied large rooms.

The invention of the transistor was a big boon to us. We suddenly were able to build them small and cheap. This applied primarily and did the biggest help for digital computers. It helped analog computers also, but we suddenly were able to build a hundred times as many circuits.

Then along came the integrated circuit, which really brought the price and size and power consumption down. This was a spectacular change.

In the meantime, the transistor had also done a great deal for the oscilloscope displays and for the television set itself, and by means of producing the higher-banded circuits for less money, which they were doing, this brought the cost of analog circuits down, which are used in displays. Analog computers themselves, meaning large scale computers, were just plain almost entirely killed off in 1950 by the advent of the digital computer. Before that the analog com-

puter had reigned supreme, for example in gun-laying computers in 1940, 1941, 1942 and 1943. Those were all analog computers, and some of them are mechanical analogs, where you had gyros turning, and that kind of thing.

But the non-giant scale analogs, analog computation meaning taking a derivative of this function with respect to time as you did in the paddles of some of these games, got so that you could really do it along about 1956, 1957, very nicely and inexpensively at that time.

Again, that analog type of circuitry, as represented in the early plaintiff's games, got overtaken again by the digital equipment, and now we find that the plaintiffs, their own games, do not use analog circuitry, that they use digital chip in the new Odyssey games.

MR. GOLDENBERG: Your Honor, I have no further questions.

MR. ANDERSON: Just a few questions, your Honor.

RECROSS-EXAMINATION

BY MR. ANDERSON:

Q Mr. Holt, we have on the record in this case one example of a 1967 vintage computer. That is the Spectra 70/25 of RCA, is that right?

A I think that is correct.

Q And that is shown under Tab 12 of Defendants' Exhibit 13, RCA computer pool, am I correct?

A Well, I don't have much of a picture. Is that what you are referring to?

Q Mine is a xerographic copy. I don't know. Do you have the original, Mr. Goldenberg?

THE WITNESS: Mine is pretty terrible.

(There was a brief interruption, after which the following proceedings were had herein:)

THE COURT: Where are you?

MR. ANDERSON: I am having the witness look at the photograph, which is, as I understand it, a photograph of the RCA computer used to demonstrate pool at RCA in 1967.

THE COURT: What tab is that?

MR. ANDERSON: That is Tab 12, your Honor.

I imagine if the Court's copy is like mine, it probably is a xerographic copy.

BY:MR. ANDERSON:

Q Mr. Holt, is that display, if you know, the \$50,000

ICI, X-Y plotter, shown in the foreground of the photographic Exhibit 13?

A I do not know from firsthand, but I expect that is what is intended to be portrayed.

Q Is the racks of the electronics behind it more or less of the type that were being employed in computers of the type of Spectra 70 in 1967?

A That is a fair statement.

Q Is the typewriter a part of the computer system for putting programs and other information into the Spectra 70?

A I would think that is considerably more than typewriters, sir.

Q It is probably a Flex-o-writer.

A No. I would think it is considered hopefully a lot more than the Flex-o-writer, which was a horrible beast. I would say this had the capability of sending data into the computer either by key depression, probably a photo-electric tape leader, a tape or tape reader, and also receiving signals from the computer to do typewriting.

Q Now, you were asked some questions about the report "Computers in the Home" of April of 1967.

With respect to that, I think you indicated that they employed a time sharing computer in general.

A Sir, I only interpreted the word, the abbreviation,

"TS". I have no firsthand information. I thought these kinds of people often used the abbreviation "TS" to mean time sharing. I don't know that they mean that.

Q In their projection for future activities in this report, "Computer in the Home" study, RCA says at page 6 with respect to System II, "Dynamic Applications" --

A Excuse me. Could you put me on to the page?

Q I'm sorry. It is page 6, under paragraph 3.

A What tab, please?

(There was a brief interruption, after which the following proceedings were had herein:)

THE WITNESS: I now have two books, if anyone would like to timeshare one with me.

BY MR. ANDERSON:

Q It is under Tab 11.

A I have Tab 11 now. Page 6?

Q Page 6. With respect to the large timesharing computer that is generally described, as I understand it, and as I understand your testimony, they say under paragraph 3:

"Dynamic applications such as pool, baseball, football, horseracing or hockey, must be done via local computer to achieve the proper visual affect."

Does that indicate that not only would they need a timesharing computer, but a local computer of some sort used in conjunction with it, as they foresaw the industry

Holt - redirect

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5, 10 years down the road from 1967?

A I have to say again this is the first time I have seen this, but if you would like to have me speculate, I will.

Q If you don't know the answer to that, that is quite all right.

Now, at page 12 of that report I think I already have read to you from paragraph 6 on System VI of this report about the future, and under A they say:

"Hardware developments (innovations required):

1. Cheap data set.
2. Cheap display."

Under "B. Software development", they say:

"1. Need a good communications package to work in conjunction with the hardware to accommodate multiple users.

2. User-oriented monitor language required."

This is software, in order to use these computers with some sort of display in the home, is that correct?

A It certainly can be interpreted that way.

Q And at the bottom it says:

"7. Time schedule:

A. Hardware, five to ten years.

B. Software, time share system, eight to 12 man-years."

That is 8 to 12 man-years to write the software program, is that correct?

A Well, the "man" is above the "years" here, but I think that is what they probably mean. That is not an unusual requirement, 8 to 12 man-years, for a time sharing system.

Q They probably don't mean 8 to 12 total years, do you agree?

A It's speculating only.

Q Eight to 12 years out in the future?

A I just don't know.

Q Isn't this report more or less like someone saying, "Wouldn't it be nice to go to the moon?" It doesn't tell you how, does it? It is just a report on what somebody hopes to do five, 10 years on. There is no circuitry, no detail.

A I would say that it is not quite that. I would say it is somebody or a group of people trying to figure out what possible ways they could sell more computers, what kind of new applications they can dream up so as to involve the general public in the future and still sell giant computers.

Q Now, you were asked some questions about the '480 patent and the single sentence at column 12 regarding the provision of one automatically moved spot.

In that particular paragraph, in that particular embodiment of the '480 patent, which is printed at column 12, starting at line 60, or actually the paragraph beginning at line 57, the reference is to a target shooting game, am I correct?

MR. GOLDENBERG: Your Honor, if it will save time, we stipulate that it is.

THE WITNESS: I think that is right. The entire sentence says that, yes.

BY MR. ANDERSON:

Q And in that particular embodiment in that particular description there is just a single dot, is that correct? On the screen?

A Apparently the photocell gun is the other hitting symbol here.

Q The photocell gun does not display a symbol on the screen that interacts in any way. The photocell gun merely reads light from the one dot that appears on the screen, am I correct?

A If you are trying to get me to say that it doesn't appear to be any hitting symbol in that, I think

I would agree there. There doesn't appear to be a hitting symbol in the way that '507 used it. He is trying to "hit the dot with a photocell gun," but that is not the way '507 talks about hitting spots.

However, the ball is moved automatically without player intervention in that particular sentence.

Q And when the photocell in the target gun sees a spot on the screen in the '480 disclosure relating to this particular embodiment, it teaches that the spot can be made to disappear, is that correct?

A I don't see it in that particular part of the specification. Certainly that is one of the things -- you had to have coincidence between the trigger being pulled and the optics being aimed also, and if there was that coincidence, then making the spot on the screen disappear was certainly one of the options available.

Q There is absolutely no teaching in the '480 patent in this regard that pulling the trigger at the right time would cause the one displayed spot to change its direction of motion or alter its direction of motion in anyway; am I correct?

A I just can't remember. I don't think that was in there, but I honestly don't remember that one.

Q You asked about the fact that there is mention of a cushion billiards game in the '507 and '284 patents on direct. Isn't it a fact in that particular disclosure they refer to the use of the joy stick, Fig. 9B, which is the same joy stick that in column 16 they teach for use in playing simulated handball?

A Again, I don't have enough of '507 --

Q Do you recall what the patent shows in that regard?

With respect to this billiards game -- perhaps I can shorten it --

A I saw a joy stick in the sentence that I read, yes.

Q So in the billiards game that is disclosed in the '507 and the '284 patents, the player actually manipulates a joy stick to move a symbol, to hit a ball, and he can not only control the direction it goes, but he can control the speed with which it goes, depending on how he moves the joy stick; do you recall that?

A No, sir, I would like to have the '507 patent, if

I may. I don't have it in front of me.

Q It is the same as the '284. Do you have '284?

A Well, I will try, but I found it was different before. I have '284.

MR. GOLDENBERG: Your Honor, we will stipulate it is the same joy stick.

MR. ANDERSON: It is Fig. 9B. It is referred to in column 16 for handball and it is referred to in column 18 as a simulated billiards game.

THE COURT: The joy stick actually hits the ball on the screen?

MR. ANDERSON: That is right. You see the moving stick and you move it with a joy stick. The joy stick is a physical device the player controls, and he can move --

THE COURT: The joy stick is represented on the screen, is that correct?

MR. GOLDENBERG: Actually, your Honor, I think it probably, in the context of what we are talking about in this patent, doesn't look like a cue stick; but once again it is one of our paddles, if you will.

MR. ANDERSON: Actually, it is explained in the very paragraph that you quoted. They all are just symbols, and they are referred to in the patent as balls. The player can actually move physically with a joy stick a

symbol that represents a ball, move it around on the screen, and hit another ball with it and they will impact depending on how he controls it.

MR. GOLDENBERG: I believe that is right.

MR. ANDERSON: No further recross, your Honor.

MR. GOLDENBERG: Your Honor, we have no further questions.

THE COURT: You may stand down, Mr. Holt.

(Witness excused.)

MR. GOLDENBERG: Your Honor, before we close our case, there is just one additional matter we would like to have the Court have in mind. What I would like to do is to describe briefly some portion of the deposition of Mr. Bushnell, which is Plaintiff's Exhibit 101.

In the course of one of his depositions, he made a sketch, which I would like to offer as Defendants' Exhibit 31. In making this exhibit, your Honor, it came up in his testimony where he was discussing the origin of his game, which ultimately in 1972 became the Pong game. He had testified earlier how his first game, which was a game called Computer Space, was available and on the market in late 1971, early 1972, which was before he had any occasion to see the Odyssey game at that exhibition in California, which came later on in the year in 1972.

His Pong game did follow his viewing of the Odyssey Game, but he was on the market with his Computer Space Game, as I say, in late 1971, early 1972.

In the course of his testimony, he was asked about how did what he called the stand alone or arcade games come into being. In explaining that, he drew this sketch, which is Defendants' Exhibit 31, stating that it was originally his intention to have a computer provide outputs to six different monitors and that the one computer, a mini-computer, would be available to control the displays on six different monitors so that six different games could be played, six different people could play the same game by dropping coins in the slot.

On page 40 of his deposition, under Tab 3 in this Exhibit 101, he is being asked about a paper that he said he had written while a student at the University of Utah, in which he had talked about the applications of games to computers. The question in the middle of the page is:

"Q Did you ever build an apparatus as was shown in the paper?

A I attempted to later on, I mean, a time sharing system.

Q When did you attempt it or when did you first start to attempt it?

A It was, I say, the middle of 1970 or early 1970.

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"Q Did you complete building the apparatus as described in the paper?

A No, I didn't. I just got to a paper design.

Q Is there any particular reason why you stopped working?

A Yes, I found a better way.

Q What way was that?

A Well, in using a computer and a monitor, the calculations you were talking about, I kept going through them, finding I was running out of time doing the kinds of things on the six monitors that I wanted to. So then I cut back to four monitors, and in doing more interface and more software, I found that I was again running out of time. Since I decided we had to design the monitor because the terminals at that time were very expensive, I was building my own monitor, a special purpose terminal for this thing. Each time I would find a computer that I was running out of time, I took some of the functions out of the computer and put it into a slightly more intelligent terminal. After I went through the loop two or three times and each time finding conditions in which the computer

"would run out of time, I took a look at the terminals and said, 'Gee, they are getting so smart, why do I really need that? Let's throw away the mini-computer and put it all in the terminal.' That is really how the stand alone games evolved. I was really happy because it made a lot more economic sense. You know, once you can split them apart so that your stand alone units, limiting your market to large amusement parks, you know, that would have to take the six or seven terminals to make it justifiably economical."

We offer this testimony, your Honor, in the belief that it disposes of the copying question and in the further belief that it is corroborative of much of Mr. Holt's testimony that this technology available in the computer art found its way into the defendants' games, and that is what Mr. Bushnell testified to, we believe, and that is the reason for our offer.

THE COURT: All right.

MR. GOLDENBERG: With that, I believe the defendants rest.

THE COURT: Very well. Is there any rebuttal?

MR. ANDERSON: No rebuttal, your Honor.

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THE COURT: Let's take about a 10-minute recess then before argument.

(There was a brief recess, after which the following further proceedings were had herein:)

THE COURT: All right, gentlemen.

CLOSING ARGUMENT ON BEHALF
OF THE PLAINTIFF

MR. ANDERSON: Your Honor, I think we now have proven what I stated in the opening statement we would prove.

First and foremost, perhaps, these patents and the group at Sanders created a new industry, television games, an industry that never existed before, both coin operated games and home video games, and at that the industry as a result of, I believe, these inventions.

The concept of paddle and ball type games was absolutely unknown in any art, whether it is the computer art or any other art, until the group at Sanders created them, and I think that is fully supported by Mr. Baer's testimony, uncontroverted, that in September of 1966 he conceived of this idea of using a television set, of which there were 60 million, to generate time pulses and move spots around, and the group thereafter created additional improvements of the idea of interactive ball and paddle type games and invisible walls off of which the ball could bounce or a symbol could bounce to simulate games like handball or hockey or the games that require walls or some other fixed symbol, volleyball, whatever it might be.

This is the inception of television games. It was followed by commercial development of a new industry. Mr. Fritsche's testimony, I think, fully supported, along with Mr. Baer's and the stipulated record, the fact that Magnavox and Odyssey started a new industry; that it was quickly followed both in the home field and in the coin field by others, and in large part every game in issue here uses this concept of a ball and paddle or a hockey stick and puck or whatever one might call it, two symbols, one of which is a hitting symbol which is player controlled, causes the ball to move dramatically and dynamically during the entire play interactively to make the ball go back and forth and change its direction. The hit symbol alters its direction in response to being hit.

Again, this is not just new in television display type games. It is new in any kind of game, in computer displays and demonstrations, whatever it might be. This has produced a new art, a new technology called television games.

Mr. Holt says the field in which the invention was made in 1967 was electronics. Maybe that was true in 1967. Certainly the field thereafter became television games, and these people created that art.

With respect to the issues on which the plaintiff has the burden, those are the issues of infringement. We have, I believe, proved infringement well beyond the burden of a plaintiff, namely, the preponderance of the evidence.

Dr. Ribbens explained in detail the accused games, the manner in which the patents in suit function, and went through the games applying the elements of the claims, pointing out how the means for generating the hit symbol and the hitting symbol are present. Those are clearly defined in the specifications as the ball and the paddle type of display, the hockey puck and the stick, whatever particular display one might call it; but the hitting and hit symbols are well defined in the specification.

THE COURT: Can you think of any kind of electronic circuitry that would achieve those results that, in your view, would not infringe plaintiff's patents?

The reason I ask the question is it relates in a sense to a question I asked early in the trial: Where does this means concept stop? Has the plaintiff achieved an absolute monopoly on any electronic games of the type shown in this specification, and if that is the case, where is there room for improvement in the art?

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MR. ANDERSON: Your Honor, especially the cases in the Seventh Circuit say that an improver is still an infringer if he uses the basic teaching. The improver, even if he gets a patent -- and we have several of those in our brief and I have several of them here -- the improver is still an infringer unless either he is licensed, or under the concept of the patent laws, the improver must wait the term of the patent before he can enjoy his improvement if he isn't licensed.

There is no concept of patent law that I know of that would say an improver, because he has made an improvement, is entitled to violate the more basic patent, and I have quite a collection of cases with me on that particular point, which I would like to hand up to the Court when I am through.

THE COURT: No. I will take your word that that is the law, unless Mr. Goldenberg disagrees.

To apply that specifically to the question I asked, it is your position that the digital circuitry is essentially the same thing, and I don't know whether there is a third kind of circuitry, but assume someone came up tomorrow with a new kind of circuitry to accomplish the same thing; would it still be your position that that would infringe your patent?

MR. ANDERSON: Your Honor, I believe that the digital-analog difference is a dichotomy. There are only two and there is probably not a third over to the side at all.

I don't think that is a distinction which can justify a holding of a voidance of the patent in suit, this digital versus analog, because the testimony by all witnesses here, I think, teaches that those two could be used by an ordinary man in the art interchangeably in a given case of the kind we have here.

It would be possible, if a new game playing display did not use TV raster scan and used the means for

generating a horizontal -- a hit and hitting symbol -- and then means for determining coincidence as taught in our patent, to make a game which would not infringe.

For example, if somebody put out one of these computer demonstrations with an X-Y display, a non-TV display, that would not be considered as an infringement of any of the patents in suit.

But if they used concepts which the Sanders group created, namely the concepts of having time pulses related to horizontal and vertical sync, player control and player reverse with the paddle-ball relationship, whether it is digital or analog, whether it uses flip-flops or gating circuits, those are details well below the level at which these claims, in our opinion, should be construed and the standards set for what we did, what our group contributed and what should be protected under the patent laws for the limited term of a patent.

THE COURT: Which is what, 11 years?

MR. ANDERSON: 17 years. And the patents are now, I think, roughly 4 years old, approximately.

So Dr. Ribbens explained the patents, explained why the claims read, applies the claim language specifically.

Mr. Dabrowski then did the same thing. He had a minor disagreement on exactly where the purple or orange lines should go, and that is, again, an incidental. It doesn't matter whether one particular wire or one particular component is inside or outside of one of those colored lines.

The point is Mr. Dabrowski found every claim element in the accused products from the Plaintiff's Exhibit 91-A and 91-B. He agreed every box was there, without exception. He actually on many of the claims and claim language went into greater detail than Dr. Ribbens did on the plaintiff's case.

Mr. Holt was asked, and said he had no disagreement with the testimony of Mr. Dabrowski, so I submit that the charge of infringement, the proof of infringement, is made out not just by a preponderance of the evidence, but, except for two minor quibbles over words, which I will get to, the claim reads item for item and element for element, and all three of the witnesses, Dr. Ribbens, Mr. Dabrowski and Mr. Holt, agree.

Now, the points on which the defendants'

witnesses would equivocate or disagree or argue, or whatever the proper term might be, are with respect to whether or not the defendants employ in their games a television receiver, as that term appears in certain of the claims, or a standard television receiver, because that term appears in some of the other claims.

But the fact is that the accused game in the courtroom uses a Zenith television receiver. It is a standard television receiver, the testimony is, and there is not a bit of dispute about that, except that Mr. Dabrowski testified three of the tubes were removed -- the IF, the RF and video detector were removed, and they could be plugged back in at any time, and the television receiver would function.

So I think in the teaching of the two patents in suit there could be no doubt that the inventors never imagined that they were being limited, because they teach specifically bypassing the RF and the IF parts of the television receiver, and going directly to the video amplifier of the television receiver.

It is unequivocally taught. There is no dispute about that. Mr. Holt agreed and Dr. Ribbens explained it in detail. It is just incomprehensible that they would have extensively taught that and then have claimed it so narrowly that they were precluded from protecting that aspect of their invention.

Furthermore, the term is defined in the stipulated definition, in Dr. Ribbens definition, and in the patent itself, where the patent mentions that a television receiver may be capable only of playing video games and certainly by exclusion not receiving broadcast programming from some television station.

Now, in addition to that, there is this question, which I think is almost academic, of whether the accused games impart a distinct motion after the hitting symbol hits the hit symbol.

We read to Mr. Dabrowski the definition from the American Heritage Dictionary, namely that "distinct" means not identical, individual, discrete, not similar, different, unlike.

He indicated that he could agree that those characterized the motion of the ball after it is hit in the accused games, and I think clearly it is.

There can be no doubt that again "distinct" just means there has to be a change in all of the games,

the horizontal components reversed. In every accused game, in the patents in suit, the motion always changes from generally to the left to generally to the right.

There is not any difference in kind whatsoever. The differences are really minutiae, whether or not there is a slight difference in the angle, depending on whether the opponent's paddle is up or down. I think that might even have been a wiring mistake. It is very minor. Both witnesses have said that. It just cannot alter the fact that the ball generally reverses its direction and starts back upon being hit by a player.

So I don't think that language can buy the defendants an avoidance of the clear intent of the patents when the claims were drafted. It could not have been otherwise, because the patents teach various ways to control that distinct motion upon bounce, with or without english, and english of varying degrees, wiggle or not wiggle, as the patent specifically discloses.

Both terms, I think, were merely intended to be broad and must be construed to be broad, and those are the only two possible issues on whether or not there is direct literal infringement by the defendant.

Whether or not there is direct literal infringement by the defendant is merely step one. If the Court should accept either the argument that a Zenith television receiver is not a television receiver by removing three tubes, then of course, the doctrine of equivalence certainly has to apply without any question because of the teaching of the patent, the fact that all that these games require is the horizontal, the vertical sync and the video information. They don't require an RF signal in any sense. There is no one in this court, in this case, who has said that in order to play a video game in accordance with the teaching of the patent in suit, you must have RF or you must have IF or it doesn't work the same. It is just a way of getting the information from one point to another. The RF is merely a substitute for a wire. That is absolutely all it is.

Again, the doctrine of equivalence says that in the event the Court should say that a distinct motion is a more specific term than we say the dictionary requires or the patent requires or that a stan-

dard television receiver becomes a non-standard television receiver merely by removing a couple of tubes or using a monitor, as they are arguing. maybe you didn't have those tubes at all -- Mr. Dabrowski said those two were exactly the same as far as the application in the accused games goes -- then the doctrine of equivalence will definitely encompass because these two games use exactly the same means, means for generating time and pulses in a television-type display, which is the same means for generating the picture, and potentiometers for generating signals that cause the hitting symbols to move up and down, and circuits within the games, and the paddles or hitting symbols which cause a hit symbol to change its direction. These are all the means. They are all the same, and they function in the same way. They produce the same result, and the visual effect, as the Court has seen, is distinguishable.

The games are played the same. The interest is the same. The way that it appears on the screen is the same.

For the defendants to argue that for some reason it is not the same means because there are a few pulse timing circuits in the middle of the circuit board, they start out the same. They start out with poten-

tiometers generating analog symbols. They end up the same. They end up with space pulses that are applied to the horizontal and vertical sweep circuits of a TV set in an analog or digital fashion.

We had some discussion which it was, but there was no question that whatever it is, the accused games and the patents are the same. If it is analog, they are both analog. If it is digital, they are both digital. That is a muddy term at that point as to just what it is.

I think to say that they are different when all of the witnesses, as far as I know, agreed you really couldn't tell at that output that was going to the TV sweep circuits whether it once had a step where it was digital for processing or analog.

So there could be absolutely no question that the means are the same and they get the same result.

Now, in the Graver Tanks Supreme Court case, which is in our pretrial memorandum -- and I have a copy of that here -- the Supreme Court said that the doctrine of equivalence performs a very important purpose and that the essence of the doctrine is it avoids a fraud upon the patents; that the patent, if it were interpreted just to cover what is specifically disclosed, would be so easy to avoid that it would be a sham, it would not provide the patentee with the protec-

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tion that he is entitled to.

The doctrine of equivalence is intended just for the type of arguments we are hearing here, that where someone is using a standard TV receiver and just by removing a tube he can suddenly make it a non-TV receiver, the game would play exactly the same, there wouldn't be any difference whatsoever, the function would be the same, but now by a minor inconsequential move, unrelated to the play of the game, they could avoid infringement.

The Seventh Circuit has a long line of cases, the Paper Converting versus SMC case, which I have here, and a long line cited in that case in which they have specifically gone into this question that you cannot avoid infringement merely by improving on the patent disclosure or on what was actually shown in the patent. An improver cannot escape infringement.

As a matter of fact, in Farmhand versus Craven, the Eighth Circuit, which is notoriously not favorably disposed toward patents, cited the Seventh Circuit cases and held infringement in the 1972 case on this very theory that a improver had tried to avoid the consequences of his infringement by claiming he had made an improvement; but that could not avoid infringement.

With respect to the other aspects of the case, they are not our burden. The burden is on the defendants, but I will briefly address myself to the allegations of invalidity, and then I would like to reserve a little time to respond on that point to anything that may be raised by the defendants.

On the question of anticipation, that is, on the question of whether or not the specific patented games are shown in their entirety and in a reference in the prior art, there is no dispute that I know of. I think the witnesses have indicated there is no such thing. The evidence is clear and there can be no question that there is no anticipating

reference in this lawsuit under the provisions of 35 USC 102.

102 gives various categories of anticipations. There is none in this case.

THE COURT: I meant to read the cases that you cited in that section of your brief, and that is the one thing I didn't have a chance to do.

Do I understand that on the matter of anticipation, there must be one device that incorporates all of the allegedly novel aspects of the alleged invention?

MR. ANDERSON: Yes, your Honor, that is correct.

THE COURT: As distinguished from obvious where you can look at combinations in the past to determine whether something should have been obvious?

MR. ANDERSON: Obviousness is a test under 35 USC 103, where you look at the state of the art at the time the invention was made and the differences between the invention and the state of the art and decide whether those differences between the invention and the state of the art, when viewed in a manner which the art suggests might be a combination of that art, whether that would have been obvious to one of ordinary skill in the art.

THE COURT: But as far as saying that something has actually been anticipated, you would have to find one device that combines everything?

MR. ANDERSON: Yes, your Honor, that is correct.

There is no dispute, as I understood the testimony, on that point. In every case each of the defendants' witnesses tried to combine a teaching in order to show how he could generate the patented structure out of the combination of references, and from that we submit that that combination in itself is a product of 20-20 hindsight. It is a matter of looking at the patents and saying, "We are going to go back and find the elements and put them together to show that it was known or obvious or one back in 1954 or '67 could have assembled these to anticipate or to render obvious the inventions of the patent in suit."

When one appreciates that that is what is being done, then an isolated demonstration in 1954 showing a billiard or a pool display or an isolated demonstration in 1967 or the Space War demonstrations in the early '60's are not at all convincing or probative of the issue of what would have been obvious to one of ordinary skill in the electronic art in 1968.

There must be some suggestion in each of the items of prior art that the defendant tried to combine of how those could be combined, and we submit there is not a real suggestion in any of these computer demonstrations that would lead one to believe that they could have gotten benefit of the invention, using the timed pulses and horizontal and vertical sweep in a timed relationship, to display an

inexpensive circuitry moving symbols interacting on a TV screen.

Just to the contrary, that work would have led away from the inventions in suit. It did lead away. It is established by the fact that RCA had a computer demonstration not using timed pulses but using the conventional memory technique of a large computer put together after 120 days of effort, just to demonstrate the memory capability of their computer, a totally different thing from what was done in the games here where there was never a stored memory in any form other than timed pulses which are moving dynamically continuously in this type of game.

The ball, as the testimony of each witness shows, has to keep moving. It can't stop because the circuits are just designed to create these timed pulses and have them dynamically moving in time, so that, as they move in time, they appear to move on the screen.

That concept is totally missing in any of these computer displays or demonstrations. There is no reason, there is no logic, there is no suggestion of why they would have gone in that direction, and they didn't go in that direction. Only Mr. Holt suggests that it could have been done now in 1976, in the light of our patent teaching; but the demonstrators were trying to show the memory capabilities of their computer, the accumulating capabilities of their computer, the arithmetic capability, the ability to perform equations.

That was the last thing they wanted to do, was to improve and come up with this. They were going in the opposite direction. They never, I believe, would have recognized that there was an industry that could be created called television games if they had just taken their own TV set and thrown away their computer and did what Mr. Holt did, built a couple of comparators here in the courtroom in 1976.

Once he did that, he didn't even need the computer any more. The parts that he provided were going to provide the basic building blocks, and even when he got done with that, of course, he still didn't have a movable paddle controlled by a player which was going to interrupt a ball. That he had to say, "Oh, well, that isn't in any of my prior art, but I will

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"provide that out of the sky."

That is just not in the prior art anywhere. He had to provide a combination of various prior art events diverse in time, say that it was obvious to combine those, and when he got them all put together, he still didn't have the games that we see in Pro Tennis or that we see in Odyssey or that we see in the patents in suit.

They still didn't have paddles. They still didn't have balls or hit and hitting symbols in which the player could manipulate the paddle during play and cause the ball to reverse direction or change direction in a very dramatic way.

RCA, I think I have already developed this with Mr. Holt, but RCA was a classic example. If there ever had been something that would have been immediately latched on to, if it were obvious, RCA would have liked nothing better than to have its TV sets marketed with a game box such as we have, if that had been obvious, or even to display their TV set with their Spectra 70 computer.

If that had been an obvious thing to do, I submit that RCA would have done it, or these various dignitaries from various TV companies who attended that single demonstration of pool on the RCA computer certainly would have done it, because it built an industry when finally Sanders did it, and Magnavox marketed it.

I think clearly also another very persuasive indicia of this unobviousness is what Nolan Bushnell did and failed to do.

Mr. Goldenberg at the end of his case just told how Mr. Bushnell thought of using a computer and multiple terminals to play games in an arcade environment. He didn't do it, didn't build it, didn't even think of it until 1970, two years after our people did, and after the patent applications in suit were already on file. Then, when he did, and he thought about it, he evolved, he says, sometime between 1970 and 1972 the idea that he kept putting more and more hardware into his terminal, his display, and less and less using his computer, and finally he got to the point in about 1972 where he said, "Maybe I don't need the computer at all."

That merely shows that somebody else years after the Sanders people did it perhaps did something

somewhat similar, but it certainly is no evidence of lack of invention. It is just the opposite, because after he did all that, he still did not have a paddle and ball game. He still not have a paddle and ball game that was played on a TV set. He didn't do that until May of 1972, when he went to the Odyssey demonstration and saw a great game, an active game, a game that attracted interest, because it was dynamic, because players were hitting balls back and forth or paddles were hitting balls and sticks were hitting pucks, and he then put Mr. Alcorn a month later on the job of designing a ping-pong game, after seeing Odyssey, and a few months later, around the end of 1972, brought out Pong.

Now, I submit that that is clear evidence not just of copying. It is that. I think it shows a clear derivation. But it also, I think, goes to the very issue of obviousness.

He did not at all recognize what could be done until he saw Odyssey, and he had TV experience, had been a maintenance man for years, and a technician. He had computer experience. He studied computers in college. He had every ingredient that the defendants now would tell you made the invention of the two patents in suit obvious. But, as a matter of fact, he didn't think of it and only put Alcorn on the job of building a ping-pong game after he saw Odyssey.

Now, I think on the question of presumption of validity, I will just briefly address myself to that.

I think very clearly the examiner knew about the '480 patent, and therefore it should be considered as part of the art the examiner knew about and considered, and the presumption of validity should be strengthened thereby.

If by chance the Court should decide to the contrary, I think it is only a matter of a presumption. I think that clearly we have demonstrated in this trial, through both plaintiff's witnesses and the defendants', that even if the '480 had not been considered by the examiner, the invention of the two patents in suit is clear over the '480 patent, over the '480 patent in combination with any of the computer games, because when you put all of that together, you still don't have the concept of hit and hitting symbols, as those terms are clearly defined in the patents in suit.

Now, with respect to other indicia of invention beyond just what the art did and what the other people who had every element necessary to put the combination together and failed to do so did, we have a story of commercial success, which is undisputed.

We sold many games. We sold 800,000 games in the beginning, without the latest data at Magnavox, some \$45 million worth of games.

Anderson - closing

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The success is unequivocal, and based on our own experience, as well as on the experience on the infringers, the copiers and the licensees.

It is unquestioned that it was a brand new product. The surveys that Mr. Fritsche took and reported on clearly show it was a new product. It had tremendous potential. Anyone who had conceived it certainly would have pursued it if the invention had been known to anyone else or obvious to anyone else, with 60 million people in the marketplace, plus quarters dying to be put into slots in arcades.

It seems unequivocal to me that all of that supports invention and non-obviousness.

Finally, the re-issue applications and the issuance of the re-issues show a double presumption of validity.

The art was reconsidered by the examiner. The specific issue of what a TV receiver was was placed before the examiner, and, as Professor Kayton testified, all of that has meaning when one looks at the record on what the examiner had in mind and what the examiner believed the words mean when he allowed claims the first time and a second time, and there can be no question, I think, after the re-issue that the best art before the examiner, that the prosecution was orderly, and there is a clear presumption of validity.

THE COURT: Do you think that the visible wall is a sufficient difference between '507 and '598 to make '598 valid in view of '507?

MR. ANDERSON: Yes, your Honor. I think, as I pursued with Mr. Holt, that it is more than just making a visible wall. That is a result, and it is an important result, and it results because there is a different circuit involved.

THE COURT: There is nothing new about the circuit, though, is there?

MR. ANDERSON: In this application, in a TV game, in displaying visible walls and bouncing balls off of them, it was never done before, your Honor.

THE COURT: I know that. But just looking at the piece of equipment itself, you are not claiming that was patentable, are you?

MR. ANDERSON: The piece of equipment?

THE COURT: The circuit.

MR. ANDERSON: No, your Honor. It is the combination of the means for doing the things as set forth in the specific claims in suit. It is the means for generating a hit symbol, the means for generating a visible fixed symbol, and the means for causing the hit symbol to bounce off of the visible hit symbol that is fixed.

THE COURT: If the wall is not anticipated by '507, was it obvious in the light of '507?

MR. ANDERSON: Your Honor, they did not accomplish that until the '507 work was well along, and they found that '507, I presume -- I don't have that record in front of me, but the testimony of Mr. Baer indicates that the '507 would not make satisfactory visible fixed walls.

Now, you can't just conceive of what you might like and thereby render someone's patent, who subsequently does it successfully, invalid. In other words, if Mr. Rusch in working on a '507 patent said, gee, I wish I could have visible fixed walls, but his circuit didn't produce satisfactory visible fixed walls, and he didn't disclose visible fixed walls in his patent, he has not invented visible fixed walls and he apparently was not able to provide in that circuit visible fixed walls.

Now, when the group then came up with the improved circuit of '598, and that was able to produce both the hit and hitting symbols, plus the visible fixed walls, then they were entitled, because they were the first ones that did that, to claim that. And the issue is one of obviousness over '507.

I certainly do not deny that I think

the issue of obviousness has been resolved here by the examiner, who had both of these clearly in front of him, the same examiner, at the same time, prosecuting both cases, and if he had thought that one was unobvious over the other, it would have been his duty, his mandate, as Professor Kayton explained, to not issue both of those patents, but require one of the patentees to indicate, because one was obvious relative to the other, that he was going to abandon his claim, and that procedure is well defined, and the examiner had that before him, and decided that they were unobvious.

THE COURT: Thank you, Mr. Anderson.

CLOSING ARGUMENT ON BEHALF
OF THE DEFENDANTS.

MR. GOLDBERG: Your Honor, the first point, and I will come back to this in greater detail, but in the course of his argument, Mr. Anderson stated that when the Court considers this question of obviousness, the law is that somewhere in this prior art there must be a suggestion of combination, of bringing these things together, and a thing cannot be obvious unless that is the case.

I would like to call the Court's attention to Torro Manufacturing versus Jacobson, at 357 F 2nd 901 which is Seventh Circuit, 1966.

In that case the trial court had sustained the patent, and the Court of Appeals reversed it.

The lower court entered the finding that prior art consisting, and this is at page 902, of certain references, and the Campbell structures considered together, does not disclose or suggest the novel combination of elements accomplishing the useful and efficient operation of a subject matter of the patent in suit.

They concluded that the subject matter was unobvious.

The trial court went on and the Court of Appeals quotes on the same page:

"None of the references disclose or directly suggest the combination of all the essential elements for performing the functions set forth in the patent and demonstrated on the trial by a machine exemplifying the patent and disclosure."

The Court of Appeals said:

"In our opinion, it is apparent from the above quoted finding and conclusion that the court's opinion, together with its analysis of the cited prior art, applied incorrectly legal criteria in its resolution of the issue of obviousness.

"The court equated the test for obviousness with that employed to determine anticipation. In so doing, the Court implied an improper standard of invention."

Continuing on page 903, the court, citing from an earlier decision of the Seventh Circuit Court of Appeals, in Akron Brass versus Elkhart Brass, stated:

"Obviousness does not require that the combination of prior art references precisely duplicate the patented article. It is sufficient that the subject matter of the patented article taken as a whole has been disclosed by the prior art."

Continuing to quote from the Akron Brass, the Court states:

"The aggregation of old parts or elements into a new combination does not constitute invention, regardless of the added convenience or utility of the result achieved. The more than the skill of the calling is required."

In considering this, I think I would like to as quickly as we can review what we believe to be important matters in the testimony as it has developed.

First, the Court will recall that Mr. Baer in 1966, in August, while sitting in a bus station in New York City, got the idea for games, and shortly after that wrote a memorandum setting forth some of his ideas, and he began to work.

In March of 1967 he was joined by Mr. Harrison, and Harrison began to work with Mr. Baer.

The work continued. There was a contact between Mr. Rusch and Mr. Baer in May of 1966, when Mr. Rusch wrote his memorandum, which proposed certain kinds of games, including ball type games, and as far as the written record of Sanders Associates indicates, Mr. Rusch had nothing to do with the matter until September of that year, when he made an entry in his notebook that he was beginning to design circuits, and that is Plaintiff's Exhibit 68, page 95.

In any case, Mr. Rusch's absence didn't stop things from going forward, because in June of 1967, Mr. Baer, working with Mr. Harrison, completed a device, which they demonstrated to Sanders' management, and the purpose of that demonstration was to get the approval of management to continue the work, to get further funding.

That demonstration was a success.

The apparatus demonstrated later on became embodied in the '480 patent, as we know it.

At that point Baer testified, and this is at the record page 368-369, that he thought -- this is the June demonstration -- that he had a viable commercial product.

What did that have? Well, it played games on a television receiver. There was a chase game, where there were two spots, and you could position them horizontally and vertically. It had a coincidence circuit, and there was a target game.

One of the spots could be made to move around during the play of the target game. It had the recognition of the necessity to have pulses and timed relationship to the horizontal and vertical synchronizing pulses. Really, as there is no dispute in this record, it had everything except ball bounce. It did

not have a ball bouncing off of a wall surface. It did not have a ball bouncing off of something that someone chose to call a paddle. But it had everything else, and they filed a patent application on it, and ultimately it became the '430 patent.

As one would hear it from Mr. Anderson now, every success that Odyssey has had as a game, every success that the defendants' games have had, can be attributed to the '507 and '598 patents. That is not so.

The '430 patent had a hand in that. And, as a matter of fact, in response to an interrogatory from one of the defendants, and this is in our Defendants' Exhibit 12, at Tab 4-A, page 8, they state that this 1TL 200, about which the Court has heard so much in the trial of this case, that that is an example of a device which is covered by the '480 patent.

So they claim, and they claim to the public, that the '480 patent has a role in this. Therefore, we believe that the Court, to the extent that it considers commercial success a factor, does have to consider what portion of that commercial success can be attributed to the patents in suit, what portion of that commercial success can be attributed to the existence of this other patent, the '480 patent, and, in addition, with respect to that question, I think Mr. Anderson

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mentioned something like 800,000 games. Well, the record, I'm sure, that the 1TL 200 is a very small percentage of that 800,000, and Mr. Fritsche testified about the number of 1TL 200 games sold, and he testified that the later games used integrated circuitry, used other features, and their prices were less.

Therefore, to what extent is integrated circuitry responsible for the commercial success of these games?

To what extent is a lessening of price responsible?

To what extent do you give the defendants credit, Mr. Bushnell, if you would, where, by introducing these games in public places, by making them known -- to what extent did that develop a market at home for the games?

Those are all elements.

Commercial success, unless shown really related to the patent, not attributed to any number of other possible factors, is a weak reed.

There are many business ideas that are very successful and patents are not granted on them. Patents are not sustained on them.

I don't know whether the Court is still interested, but in considering this, at one point the Court

asked me if I would not devote myself to some degree to giving the Court cases where a patent on some new product had been held invalid. I am prepared to do that.

THE COURT: Yes. I would like that.

MR. GOLDENBERG: The first point I would make, your Honor, is perhaps a reiteration of what I have said just a moment ago, that these patents are not the first patents on home TV games. If home TV games are indeed a new product, the first application filed, the first invention made, is the '480 patent. It is not any of the patents in suit.

The first case I have is a classic, and I suspect, your Honor, that every patent case you have, some patent attorney is going to cite it to you. I cite it to you not so much for the language, with which you are going to be familiar, but really this is the A&P Tea Company versus Supermarket Corporation, which is at 34 US 147 and is a 1950 decision of the Supreme Court.

I know now when you go to Dominick's or Jewel, it doesn't look like very much because there are very fancy things at the check-out counter. They have moving belts and all kinds of things, but there was a time when that wasn't the case. This patent dealt with the first check-out counter in a self-service supermarket.

The cases trace the history of a self-service from Piggley Wiggley in 1917 to the problems of the supermarket in the '30's, when they became popular and there were back-up lines at the cash register. There the inventor got an idea of lengthening the counter and then having a hook, a wooden hook, and you would put your groceries in the hook and then the checker would pull that hook up from the lengthened end from the front of the cash register.

I don't know whether you recall seeing such things, but they certainly haven't been around for awhile. It was agreed by all at that time that the supermarket really became something when this check-out facility was added to it.

The District Court of Appeals had sustained the patent. The Supreme Court reversed it and said no, and saying no, it used much of that language that you will be hearing time and time again from all patent lawyers who appear before you.

This is the Court now at 153:

"The Court of Appeals and the respondents both lean heavily on evidence that this device filled a long felt want and has been showing commercial success, but commercial success without invention will not make patentability. The court below concurred in finding that every element here claimed (except for extension of the counter) was known to prior art. When for the first time those elements were put to work for the supermarket type of stores, although each performed the same mechanical function for them that had been known to perform, they produced results more striking perhaps than in any previous utilization. To bring these devices together to apply them to save the time of customers and checker, was a good idea, but scores of progressive ideas in business are not patentable and we conclude on the findings below that this one was not."

I give that to you as one such case. I can go back, as I do, to 19 US 530 in Collar Company versus

Van Deusel. In this case the invention was the paper collar. I suspect it is hard to imagine now what the paper collar meant, but in its day, it was a very important thing.

I will not go into the language, but it is very similar to the A&P case. That patent, too, was held invalid.

At 87 US, in Rubber Tip Pencil Company versus Howard -- and we still use them today -- the idea of putting an eraser on one end of a pencil -- and it hadn't been done before -- that patent was held invalid at 87 US 498.

More related to what we are concerned with in this case is probably one of the most important advances in electronics. It is the high vacuum tube. Dr. Langner, of General Electric Company Laboratories, invented the high vacuum tube, 1912, thereabouts. The high vacuum tube until the transistor came in 1948 was the only device the electronics industry knew, and it was used in radio, in radar, in just every conceivable thing. It was very important.

The Supreme Court in DeForrest Radio versus General Electric Company, at 283 US 664 -- that is in 1931 -- held that patent invalid.

Once again, on 678, the Court said, and this is in 1931:

"That the high vacuum tube was an improvement over the low vacuum tube of great importance is not open

"to doubt," but nevertheless, it went on to hold the patent invalid because the technology by which it was achieved was known in the art, although it was not used for that purpose.

Another one is the cigarette lighter in your car. This is Kuno Engineering Corporation v Automatic Devices, 314 US 84. This is the patent on the pop-out cigarette lighter. Cigarette lighters in automobiles prior to that time came with cords that ultimately were connected to the battery. When you thought the cigarette lighter, cigar lighter, was hot enough to use, you pulled it out and it at all times maintained a direct electrical connection to the car's electrical system.

The inventor here got the idea of using a thermostatic element and an electrical heater in the little unit, and when the thermostatic element got hot enough, it broke the electrical circuit and caused the cigarette lighter to pop out, a device of great commercial success, but nevertheless represented a use of a prior art.

It isn't just the Supreme Court who invalidates such patents. I have here Zumar v Paillard. This is 285 F 2d 527, and it is the Second Circuit, 1958. This was the patent on the zoom lens as used on television cameras. I guess they came into use in the 1950's, 1960's. It hadn't been around before, but nevertheless, the Court of Appeals in Zumar held the patent to be invalid as not being obvious over the prior art.

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I have some others, but I think --

THE COURT: All right, I think I get the point.

MR. GOLDENBERG: I will attempt to move along as quickly as I can, your Honor.

This chronology, as I say, we believe establishes Mr. Baer's work alone as prior art to the work of Rusch and the work of Rusch, Harrison and Baer. We also think that without a doubt we have proven the public uses of several things, and they are the computer games, Michigan pool, RCA pool, and Space War.

We think that Mr. Holt's testimony is really uncontradicted that this is a technology that came directly into the technology that we are concerned with today.

No, none of those games were paddles and balls. They were balls. They were balls bouncing off of fixed hit symbols, walls in the RCA pool game. They weren't paddles, but the claims don't call for paddles. They simply talk about hit spot and hitting spots.

The patentee Rusch himself in these '507 patents describes the billiard game. That is not a paddle. It may become a paddle because somebody chooses to call it a paddle, but it really doesn't change the nature of what was being done there.

So we think those things together, and

we think the evidence that we have presented with respect to their specific circuits -- and this is in our binder of prior art -- all were available, all were known to the man skilled in the art.

It would have been obvious to such an individual charged with the knowledge of Baer's work to have taken these things from the prior art and used them in his device.

I don't think the law requires that you take the specific circuits or devices. He has the concept there, and have in mind that in 1966, 1967, '68, these concepts were known and all kinds of circuits were known, circuits for generating and moving spots about on television receivers.

With respect to the automatic movement of the ball, that, too, is in the '480 patent. It is disclosed there. It is claimed as Claim 25. It is part of the invention of the '480 patent.

How many times can they patent it? That '480 is prior art --

THE COURT: This is the automatically moving ball that you are talking about?

MR. GOLDENBERG: Yes, your Honor, that '480 is prior art for whatever it shows, we believe, is the rule in Sutter Products v Pettibone-Mulligan.

This is at 428 Fed 2d 639. This is the Seventh Circuit in 1970.

I would like to deal with whether or not the '480 was considered by the Patent Office. It is a matter of moment.

Mr. Kayton didn't say so. Mr. Kayton's testimony in very large part was that the examiner was charged to do certain things; that he, Professor Kayton, had no affirmative evidence that he did those things that he was charged to do.

THE COURT: May I just interrupt for a moment, Mr. Goldenberg?

MR. GOLDENBERG: Surely.

THE COURT: This issue goes to whether the presumption exists, and it also goes to the question that to the extent the findings of the patent examiner might have any weight, you want to show that he didn't consider '480.

Are those the only contentions you are making?

MR. GOLDBERG: No, your Honor.

THE COURT: Are you contending that there was fraud on the Patent Office?

MR. GOLDBERG: We contend that the Patent Office should have been told.

THE COURT: What I don't understand about that situation -- and maybe you can enlighten me -- I can understand how the applicant would be motivated to conceal someone else's patent, but why would he conceal his own patent which he already has pending, let's put it that way. I know it hadn't been issued, but what would be the motivation of plaintiffs here to conceal '480 from the Patent Office?

MR. GOLDBERG: I can't say. You know, I, of course, would be speculating.

Let me say this in that respect: At one time in this matter we had a substantial issue in the pretrial stage as to whether or not the plaintiffs would

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answer certain questions about the '480. These were requests for admission.

The plaintiffs refused, and I think their essential position was that was not prior art. They simply couldn't see it and they disagreed.

In the end the matter went to the magistrate, who ruled in our favor in that respect. He rejected that contention.

It is entirely possible that the plaintiffs had that view for some time. In the presentation of this case, that was not presented to you. I am not aware that the plaintiffs are saying that the prior work of Baer, as represented in the '480 patent, is not prior art. I don't think you have heard any dispute on that.

So I don't know. I can only speculate.

What do they gain by it? They gain this by it, if you will. I can only give you my view of what the examiner would have done.

It is my belief that the examiner, if he had had it available to him and known '480 was prior art, these patents might not have issued. I do not believe they would have issued in their present form. I think the claims at the very least would be a lot more restricted than we presently see them.

There is an advantage to a patentee to have that happen. It puts the burden -- I am sorry. It is an advantage to a patentee not to have that happen, to have his patent come out with the broadest claims that he can get. He puts the burden on defendants. The law puts them on defendants.

A lot of defendants faced with a patent surrender, if you will. They are not willing to fight, to make the effort, to prove it. So they are tickets to a courthouse, if you will. They have an inter rorem effect.

Those things are benefits. Those benefits might not be there if the Patent Office had been told all that was in the prior art, including Rusch's work.

A patent, even a scarecrow patent, has value. It has commercial value in intimidating a market, and not all people fight them.

As I say, this is no more than a personal view. What was in the plaintiff's mind, I don't know.

THE COURT: Of course, even on that set of facts, there would still be complete coverage for the plaintiff as among the various patents. Let's say the '480 covered part of it, and then you had the other two. What difference does it make where the protection is located as among the three patents?

MR. GOLDENBERG: As a practical matter, it could have a lot of difference. For instance, the amount of royalty that you collect or are enabled to exact from an industry may be one thing if you just have one patent, but if you go to an industry and say, "Look, I have 3, 4, 5 patents," it is a practical matter that you can get more money for that.

So they serve that purpose. They don't just exist as paper of no value. They have an impact. They put a burden on the defendants, if for no other reason. The statute presumes them valid, and they have to be dealt with. To study a patent and come to a view as to whether or not it is valid is a formidable effort. The patent has to be read. The prior art has to be read. The file wrapper has to be read.

To the extent that you add those burdens to an industry, they have the potential for harm. So there are advantages.

Now, what has happened here, 20 years ago this didn't make any difference because private litigants could not set patents aside for fraud. The Courts held uniformly that only the United States Government could do that, and as far as I know, the United States Government never did it. In Walker Process v Food Machinery, for the first time the Supreme Court permitted private

litigants or opened the door, which ultimately became this opportunity for private litigants to get in there and, if they could prove fraud, if they could prove the other elements of an antitrust violation, collect damages.

The assertion of a patent knowingly obtained by fraud is a violation of the antitrust laws. The Courts since that date have evolved down, really, two rules. One is the Walker Process rule, and the other one says, "Well, it is not an antitrust case, but the patent cannot be enforced because it was obtained by fraud."

I don't think all of us are clear yet on precisely what our obligations are as patent attorneys. I think the law is still developing in that area. We have different rules in different circuits, so very frequently it is hard to find out really what you should do. My point would be that this situation was clear. This work we are talking about here took place within the four walls of Sanders Associates. They knew more about it than anybody.

THE COURT: On the factual aspect of whether the examiner knew about '480, how do you account for the references to that application in the patent?

MR. GOLDENBERG: Yes, sir. First, as we have told the Court, Section 901.03 of the Manual is just clear on the point. A pending application cannot be used to reject another application. That is just as clear.

So even though it was referred to, there is nothing the examiner could have done with it until it issued as a patent. The '480 patent did not issue until after the '284 and the '285 patents had issued. The '480 patent issued in April of 1973. The '284 patent issued in April of 1972, and the '285 patent also issued in April of 1972.

So all during the pendency of the '284 and the '285 patents, the '480 thing was an application. It was not a patent. It could not have been used as a reference.

When I asked Professor Kayton on what basis

it could have been used as a reference, he referred to Section 102(a) of the statute, which talks about prior knowledge:

"The invention was known or used by others in the country," etc., "before the invention thereof by the applicant of the patent."

That is 102(a).

I submit Professor Kayton was wrong; that that section of the statute doesn't apply at all because 102(a) knowledge has just been conclusively -- there is no decision to the contrary to defeat a patent -- that it must have been prior public knowledge. Prior private knowledge will not defeat a patent.

I just do not believe there is ever a case that has ever said anything to the contrary. So I have those two elements, the provision of the Patent Manual and Professor Kayton's theory is wrong.

He argued, if I may say that, that these references in the patent constituted admissions that '480 was prior art and the examiner was bound to consider those admissions. In support of that, he said -- well, he called it In Re Hellsund, but that is from the USPQ. It is Application of Hellsund, 474 F 2nd, 1307. This is the Court of Customs and Patent Appeals in 1973. There are two points. It doesn't support what Professor Kayton said.

There the Hellsund application was rejected on the Opal Patent, not on the Opal application. There was

no rejection of one application on another application.

Secondly, the so-called admissions that the Court relied upon there were quite different from the references that appear in the '507 and '508 patents.

I asked Professor Kayton, "Is there anything in either one of those patents in which the applicant tells the Patent Office that what I am describing is an invention made prior to mine?"

That isn't the precise question, but that is almost the question asked.

He said no, not in those words, and that he was inferring something as a result of the words that were there.

The application for the '480 patent was in a different art unit. It was not that far away, but it was in a slightly different part of the Patent Office.

THE COURT: The examiner apparently had to take some kind of affirmative action to learn that the application number had changed.

MR. GOLDENBERG: They told him that, your Honor.

THE COURT: Who did?

MR. GOLDENBERG: The applicants did.

THE COURT: I gathered from what Professor Kayton said that this was something that the examiner found out for himself and told the applicants.

MR. GOLDENBERG: No, your Honor. That is not

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so. They filed an amendment advising the Patent Office that they had filed a new application in connection with the '480 matter.

Now, missing from that was the new serial number of that new application.

Have in mind that there were actually two applications resulting in the '480.

The examiner just updated that, but even if he did take the initiative and find out what happened there, there is nothing in this record that says he considered that disclosure and attempted to reject the claims. As a matter of fact, the only evidence is to the contrary, and this is in the second office action in the '284 case, where the examiner rejected claims --

THE COURT: I recall your cross-examination.

MR. GOLDENBERG: If one wants to draw an inference, it seems to me the inference better supported is that the examiner did not consider the '480, and there certainly is no positive record that he did.

To wind up the matter of invalidity, I really think I have said it all before, that here was this body of technology changing very rapidly, very rapidly, and all of these things were available, and as fair or as unfair as one may think it is, the law

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charges inventors with knowledge of these things, whether he actually knows them or not, and really it is fair, because the public has all of these things, one way or the other.

The RCA and the Michigan pool games did get buried in obscurity. They appeared in the literature, and one who wanted to find out something about them, all he had to do was to track it down.

Very frequently you don't have the incentive to do that until you become the defendant in a patent lawsuit, but there are many instances when the technical person resurrects, if you will, something from the public-available prior art and uses it because he has an interest in it.

So these prior things are not to be written off because one can't draw a direct family tree down to what we are dealing with now. They were there. They were known. They were recoverable. That is what happened.

As Mr. Holt has said, the defendants' games have a lineage which goes directly back to this computer and display technology. I think that testimony should be believed. I think it is buttressed by Mr. Bushnell's entry into this business. Mr. Bushnell, as I told the Court this morning, started out with a computer, a mini-computer. This is in his thinking, with six monitors and he wanted to control all of them from the computer.

He found out as he went into it that it was actually easier to take things out of the computer, to take software and to put it into the game in the form of hardware. That really is where the defendants' games came from.

Goldenberg - closing

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I will grant you at some future date Mr. Bushnell apparently saw an Odyssey and began to design a ballgame. But prior to that he had on the market his Computer Space, which according to my understanding is the arcade game, the coin game version of Space War. It is essentially the Space War game, and all that has happened is that computer technology now is represented in the circuit boards of Mr. Bushnell's game at that time.

I already have spoken on the matter of presumption. I have cases from our Circuit which I believe are actually supportive of the point, that if the defendants show a prior art, which is more pertinent than that considered by the Patent Office, then the presumption fails, and I thought this might be a trial de novo, and what has happened in the Patent Office really doesn't count.

This is TP Labs versus Huge, 371 F. 2nd 231, and that is the Seventh Circuit, 1966.

Daybright versus Sande, 286 F. 2nd 596, again a Seventh Circuit case, 1960.

Leach versus Badger Northland, 385 2nd 193, the Seventh Circuit, 1967.

There is in addition another case, and this is Leach versus Rockwood, 404 F. 2nd 652, the Seventh Circuit, in 1968, and this case our Court of Appeals held or sustained the holding of invalidity where the only art that it had was art considered by the Patent Office.

So this business of presumption of validity, I don't say that we can write it off, but I certainly say that in the light of this case, it is not here.

The Patent Office, we submit, does not have the prior '480 invention. Certainly it did not have space for it. It did not have Michigan pool. It did not have RCA pool. Those things are far more pertinent than anything considered in the Patent Office.

On the matter of infringement, this is, of course, the plaintiff's burden, as they recognize.

They would have it come down to some meaning of "distinct motion" and some meaning of "TV receiver" and "TV monitor".

We submit that it cannot be that way. It is far more than that.

The motion, the action, in the defendants' games is so different from the subject matter of these patents, so different from the Odyssey LTL 200 game, that time and time again we heard about the english control in the patent. In response to a question about english control, and I think this is to Mr. Baer, the answer was "No, that is not important."

Then we are told, "Well, you don't have to have english control. You can preset the english control knob."

Well, there are two things about that.

One is the patent does not teach presetting the english control knobs. The patent teaches that during the play of the game, that english knob is moved constantly. That is one thing.

The other thing is that if you do that, you are going to get one of the silliest games you have ever seen, and I think we saw it here during Dr. Ribbens' demonstration, with the help of Mr. Anderson and Mr. Williams, where the ball just is going to go back and forth in the same path all the time.

That doesn't happen in the defendants' games. The ball bounces in any number of ways. I have not calculated them all, but there are somewhere between 8 and 16 different ways, depending on where the ball hits on the paddle, depending on where the opponent's paddle is.

There isn't anything in the patent that works anything like that.

There isn't any result like that. There isn't any means that permits that to be done. And there isn't any operation like that.

I don't know. This is a very subjective thing. But even on the most superficial basis, they are not the same.

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Mr. Anderson made reference to the doctrine of equivalence. There has been a doctrine in the law a long time, and our Court of Appeals, as much as any court, has accepted the view that unless you have a substantial identity of means, operation and result, you do not have infringement, even if you have a literal reading of the claim.

This law, as far as I know, was enunciated by the Supreme Court in 1898 in Westinghouse v Boyden Power Brake Company at 170 U.S. 537, and on page 568 the Court said: "Even if it be conceded that the Boyden device corresponds with the letter of the Westinghouse claims, that does not settle conclusively the question of infringement.

"We have held repeatedly that a charge of infringement is sometimes made out, although the letter of the claims be avoided.

The converse is equally true. The patentee may bring the defendant within the letter of his claim, but if the latter has so far changed the principle of the device that the claims of the patents literally construed have ceased to represent his actual invention, he is as little subject to being judged an infringer as one who has violated the letter of the statute has to be convicted when he has done nothing in conflict with its spirit and intent "

The Seventh Circuit long has accepted this as the law.

In Fisher Products Co. versus National Pressure Cooker Company, 178 F 2nd 125, and this is the Seventh Circuit, 1949, the Court states:

"In considering whether there was infringement, the claims must be read in light of the invention disclosed. We must apply the well-established rule that whatever the language of the claims may be, they cannot cover more than the patentee's invention. That is to say, the claims cannot be given a construction broader than the actual teachings of the patent as shown by the specification and drawings. "

I submit that is another statement of the Westinghouse V. Boyden Rule.

In Shebatzroy versus U.S. Steel, 287 F. 2nd 552, I think in a somewhat similar situation to what we have here, and I will not go into the details of the subject matter, on page 556 it is stated:

"Although the claims, not the specification or drawing, define the invention," citing a case, "it is also true that the claims should be construed in the light of the specification and drawings," citing a case, "and in the instant case recourse to the specification and drawing was proper if not necessary

to determine the concept intended by relative motion, indicating the displacement and indicating various portions and distinguishable characteristics in the context in which such phraseology was explored.

So there is specific claim language, and the Court of Appeals said that to understand what that means, it is appropriate, it is necessary, to go to the specification and drawings.

Here we are dealing with the language "distinct motion", and if we go to the specification and drawings of the patents in suit, it means english control. It means continuous control of the ball by the player by the use of his english control knob. There is nothing like that, nothing remotely like that, in the defendants' games.

Your Honor, there are other cases on this, including cases from other circuits and cases from the Seventh Circuit, but I don't know whether you want them from me at this point.

THE COURT: No.

MR. GOLDENBERG: In the matter of digital versus analog as a distinguishing feature, really we have had testimony on that from two different kinds of witnesses, Professor Ribbens and Mr. Holt, I think their testimony disagrees.

I think there is nothing left but for the Court to decide in its mind what weight it gives to the testimony of those parties.

I would only say that the '507 patent came into being, and I don't think there is any dispute but that it is an analog circuit. It is the one with the slicer and the sawtooth. It never worked. That circuit has never been used in a commercial device. It has never been shown. Mr. Baer testified it never worked. It had a temperature and voltage stability problems. So they come along and get their 28,598 patent, and that is a different circuit they say, and that is an important one, they say. It solves the problems that were present in the '507. They call it a digital circuit. I don't think it is, but they call it that.

It seems to me that there is a kind of inconsistency there. If this difference, of going analog to digital in '507, is important enough to sustain a difference with respect to the '598, then it is an important matter with respect to distinguishing between the circuitry of the '507 and the defendants' games.

THE COURT: Both sides are sort of carrying that one on their backs, aren't they? Don't you have the same sort of trouble? Would you say that your games are distinguishable from the plaintiff's games by reason of the difference between analog and digital, then by the same token how are the digital games anticipations of '507?

MR. GOLDENBERG: I would not disagree that we have that problem. But I think it's a problem that we can deal with a bit easier than perhaps plaintiffs can.

Have in mind that we are not coming before you and asking you to construe these patent claims broadly so as to hold someone had to be an infringer at one time, but then the next time construe them narrowly so as to avoid the prior art.

In a certain sense our position would come down to this, that if the plaintiffs say these patents are as broad as they are, then they read on the prior art.

On the other hand, if the plaintiffs were to pull in their horns, so to speak, and not assert such breadth for their patents, we would not be concerned about them.

But they don't choose to do that, your Honor.

THE COURT: Apparently not.

MR. GOLDENBERG: Your Honor, I think this completes what I have to say.

THE COURT: Thank you.

MR. ANDERSON: May I have a few minutes, your Honor?

THE COURT: Yes.

MR. ANDERSON: First, I think clearly the record is contrary to Mr. Goldenberg's representations on the operativeness of the '507 patent disclosure.

That structure worked. It was demonstrated. It played games. It just didn't make good straight lines.

That is the reason Mr. Baer said it wasn't a satisfactory circuit. It did have drift, he said, and because it had drift, it didn't matter when you were playing a game with balls and paddles, because you were moving them all the time anyway. But when you tried to build that slicer circuit for fixed visible walls, then the visible walls moved or wiggled or became less than straight, and for that reason it was not satisfactory for that purpose.

But it was totally satisfactory, tested, demonstrated, and therefore to say it didn't work is to paint with an extremely broad brush.

I might say also that on the question of

preset in the play of the games, I think the testimony was clear, and I think the patent is clear. It says that with the english control the player can set it to have the ball go up, go down or wiggle. If the player sets the english control just before the time he hits it, it will go up or down or straight back, depending on where he sets it. If he continues to manipulate after he hits the ball, he has continuous control, and it is true he can make it travel in various random paths. The patent sets out those three modes of ball bounce in the '507 patent, column 14, lines 64 and 65.

Not only that, but in column 15 it suggests that the V_R and V_L , the voltage that makes the ball go up and down, can be changed electronically, which is what Mr. Busnhell decided to do in Pong and what all the accused games do.

He explained that he thought for an arcade game you have to have one player control. So he just devised what I suppose you could call an improvement, so that with one player control you could preset the english, and you could cause the paddle to manipulate and hit the ball also.

THE COURT: Refresh my recollection. Does the player in Paddle Ball have control over the place on

the paddle that strikes the ball?

MR. ANDERSON: Yes, if he is skillful enough. He must manipulate his knob up and down, so that as the ball is coming at it --

THE COURT: He can change the tilt?

MR. ANDERSON: Not the tilt, but the position. Straight up and down. He can manipulate so that it hits near the top and goes up or near the bottom and goes down. That was Nolan Bushnell's way of getting the Odyssey english on a single knob.

I wouldn't dispute that it is an improvement, because there is no doubt that improvements, as I mentioned to the Court -- the Seventh Circuit in particular is extremely outspoken on the fact that you can't avoid infringement with an improvement. You still are an infringer.

With respect to the cases which Mr. Goldenberg has cited on whether or not a new product or creating a new field can have effect on patentability, I'm not familiar with all the cases that he cites, but I do know that at least one of them he cites did not hinge on a question of obviousness at all. That is the way commercial success comes up or the newness of the field comes up.

There are many, many, many patent cases where the patent did not create a new industry or was not a new art and was still patentable. In the Eberhard V. Fabrik case, to which Mr. Goldenberg refers, the issue was not obviousness. It was one called aggregation. The pencil was at one end and the eraser was at the other, and the Court found it was unpatentable.

Also, I believe, it was not the first time that a pencil and eraser had been combined. It was an alleged improvement over an earlier one.

Nevertheless, I think what really counts, as the Supreme Court has said in many cases, and I think many of them are referred to in a very old case, which is the Morley Machine versus Lancaster, 129 U.S. 263 -- there the Court says:

"The question of whether the patent creates a new industry or a new art or is a new product goes to the scope to be accorded to the claims when they

"issue more than the basic question of whether or not newness of the art or a field makes patentability."

I think the issue on patentability is won on what the inventor has done.

In the Morley case, the Supreme Court said:

"Morley, having been the first person who succeeded in producing an automatic machine for sewing buttons of the kind in question upon fabrics is entitled to a liberal construction of the claims of his patent. He was a mere improver upon a prior machine which was capable of accomplishing the same general result, in which case his claims would probably receive a narrower interpretation."

But here, therefore, where we say that this patent created a new field of ball and paddle type games, I think that just indicates that the claims are deserving of even greater scope than perhaps would be true if it were not so.

As to whether or not this patent created a market or not, I think again that the evidence is clear in this case. The Pro Tennis Game, the Pong Game, are all ball and paddle games. As a matter of fact, when Odyssey first came out, as Mr. Fritsche testified, they had a lot of overlays and things, and they taught how to play various chase games. But they all have been eliminated, because it is the

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ball and paddle game that sells, and it is the ball and paddle game that everyone wanted, and that is where the art has gone.

Whether it is made and manufactured by integrated circuits or whether it uses analog or digital, it is that direction that the art went.

With respect to the In Re Hellsund case, Mr. Goldenberg is wrong. The Opel patent had not issued at the time the examiner relied upon the admission. He said it was a patent. It was not a patent. It was a patent application.

The Opel patent issued on May 2, 1968. That is the patent involved in In Re Hellsund.

The Patent Office rejected the application. It went to the Board of Appeals and then to the CCPA, prior to the issue date of patent, October 16, 1967.

There is a parenthetical reference to the patent number, but apparently that was an editorial edition in reporting the case at a later date.

I think Professor Kayton established that, one, the reference to the '480 application and the '507 application in '598 is an admission against interest, and also there is an examiner's mandate. Mr. Goldenberg's reliance on Section 901 of the Manual just doesn't meet the issue, where the two applications are owned by a common assignee. Professor Kayton explained in detail, and 901 says, that you look to the sections of the Manual which dictate to the examiner what he must do, where there is common ownership. Therefore, there is no doubt that in this case the

examiner had full knowledge of those cases.

He didn't just add the number in five or six places throughout the specification where the applicants explained what '480 disclosed. He put a whole paragraph at the beginning of the patent referencing the related applications, and I think clearly he knew what he was doing when he did that.

I think that fact, those facts, just clearly preclude any contention of fraud or any sort of unclean hands in this case.

I think, contrary to Mr. Goldenberg's suggestion about a dispute in the course of the pretrial proceeding of this case, we did take the position that the '480 patent is not prior art as to the '507 patent, because it was filed on January 15, 1968, and the work that Rusch did was completed before that date.

Now, that is not to say that the demonstration could not be relied upon or the admission, the statements that were made by the applicant, as to what is the prior art, were available to the examiner. But the '480 application per se as a statutory event was not prior art.

Now, Mr. Goldenberg has read from various cases on the issue of obviousness and the Seventh Circuit cases on the suggestion of a combination. But those

cases are specific to direct suggestions, the case that he quoted from saying that it is not necessary to find precisely the disclosure in the prior art.

Well, there is no question about that. In this case this is a far cry from that. There is not even a close single reference, and even when they put all their art together, they do not come up with the claims of the patents in suit.

I think that takes up the major points.

THE COURT: Thank you.

MR. GOLDENBERG: Your Honor, if I may --

MR. ANDERSON: There is one other point, if I may.

The application of the Hellsund case, reported at 174 Fed. 2nd 1307, has been followed in two subsequent cases.

The application of McCellan and the application of Nomiya, the first being 529 F. 2nd, 1324, and the second 509 Fed. 2nd 566.

MR. GOLDENBERG: Your Honor, whatever Hellsund says, of course, it says. But I believe if you read the case, you will see it would have been rejected on the Opal patent.

My apologies to Mr. Anderson. There is another matter with respect to our defenses which will take really two minutes. That is in January of 1968 Mr. Baer and other Sanders people held a meeting with people from Teleprompter in an attempt to discuss a licensing negotiation or some kind of commercial relationship.

There is no factual dispute that prior to the time of the meeting Teleprompter signed a document indicating they would respect the confidences or treat as confidential the things they were told in the course of that meeting.

We submit, your Honor, that that was a placing on sale the invention more than one year before the application

for the '504 patent was filed, that it was an attempt to commercially exploit -- I said '504; I misspoke -- the '507 patent, and that it was an attempt to commercially exploit that invention, and it took place more than one year before the application was filed in May of 1969.

It is strictly a question of law as to whether or not that is the fact or whether or not the Court would agree with us on that.

I do not believe there is any factual dispute about what occurred.

MR. ANDERSON: Your Honor, on that point I think the record is without controversy. Mr. Baer testified they wanted to get some help on cable information, on how they might use this breadboard to develop a game that could be used with cable.

If you recall, it is the board that was referred to as a breadboard. As Mr. Goldenberg has correctly stated, before they would even let the two individuals from Teleprompter come up and look at the thing and tried to help the people at Sanders with that particular concept, they had to sign an agreement to keep the disclosure in confidence. There was nothing in existence to sell. There was no discussion of selling a product to Teleprompter. There was no offer for sale. It was still just a breadboard.

I think the cases are absolutely clear on this.

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this.

THE COURT: What is the law? If it is placed on sale, then if the patent is applied for more than a year later, the application must be rejected?

MR. ANDERSON: If the product were on sale, yes, your Honor.

THE COURT: Mr. Goldenberg.

MR. GOLDENBERG: Your Honor, I don't think that quite states it.

I would like to read from Mr. Baer's testimony at 377. He is discussing the Teleprompter meeting. This is on cross-examination.

"Q Wasn't there a discussion whereby Sanders might build equipment by Teleprompter to be commercialized in some fashion by Teleprompter?

A If that came up as one suggested way to go, as part of a business association between us and Teleprompter, then the answer to that question is probably yes. But that was just one of the many questions that were up for grabs.

The whole relationship with Teleprompter was one of exploring what we might do together, and it never really got beyond the point where we made several suggestions, worked up an outline for a plan we might proceed with, and all of that was really directed toward finding out whether

"playing games in this kind of environment was possible. It was brand new. No one had the slightest idea of whether it was a valid concept.

Q Well, wasn't one of the things that was discussed a licensing arrangement with Teleprompter?

A I don't recall specifically whether a licensing arrangement was discussed at that time."

I might add at this point in answering an interrogatory from the defendants, the plaintiffs have responded by saying that the licensing arrangement was the purpose of the meeting.

THE COURT: Isn't there a distinction, Mr. Goldenberg, between negotiations and discussions on the one hand, and placing on sale on the other?

MR. GOLDENBERG: No, your Honor.

THE COURT: You mean you can't even discuss it?

MR. GOLDENBERG: No. I would state my understanding of the law. The device that you have must be in being. It must be reduced to practice. However, it need not be available for delivery.

The statute uses the language of placing on sale, and in our court that has been held to mean

any attempts to -- well, I don't want to say any attempts, but an attempt to exploit commercially. In a number of our cases -- for instance, where samples have been submitted and considered and the samples returned later -- that has been held to be a placing on sale.

So there need not be an actual sale, but there has to be an offer to sell.

MR. GOLDENBERG: I would say to the Court in all candor that I think the real question is whether an offer to license is an offer to sell a physical thing. I would be asking the Court, as far as I know from my canvassing of the law, to rule in a new area, but I think I have a right to do that. The cases that I know deal with the sale or offers to sell of physical hardware and do not, as I have been able to read them, except in one instance, deal with the matter of attempting to license an invention.

The statute, of course, speaks of placing the invention on sale.

THE COURT: All right, Mr. Anderson?

MR. GOLDENBERG: I make my statement now because I simply want to preserve my rights with respect to the matter.

THE COURT: Yes.

MR. ANDERSON: The defendants, I think, have failed to sustain any burden of proof on the issue of even a discussion of licensing. The fact that maybe that was in the remote recesses of the minds of the parties is not indicative at all, but more important than that, I think, is that in the cases -- and I don't have many with me, but I do have CTS Corporation versus Piher with me, reported at 527 Fed. 2nd 95, where this issue of on sale came up.

The Seventh Circuit there made clear that it is a product that must be on sale and at page 102, the Court

said, "The challenge rests on Section 102(b) which defines the so-called on sale defense. The statute speaks in terms of 'the invention' being on sale in the United States more than one year prior to the application date. It might more precisely have referred to a device embodying or disclosing the invention."

That is the issue, I think, and not some theorial concept.

There is a footnote relating to that that explains the policy underlying it, that the inventor can't commercially exploit the product in secrecy or something of that sort and still retains its right to a monopoly.

I might say on that point, as well as the others, that the defendants' burden here, of course, is at least clear and convincing, and in the Seventh Circuit, I think the burden of proving invalidity is beyond a reasonable doubt. I think in this case, there is certainly no evidence that would support as a conclusion that there was anything on sale within the meaning of the statute at the time that the two men from Teleprompter came up in secrecy to look at the demonstration of the breadboard of the game that existed in January of 1968.

THE COURT: All right.

MR. GOLDENBERG: I have nothing further.

THE COURT: All right, we will take a 10 minute

recess.

(There was a brief recess, after which the following proceedings were had herein:)

THE COURT: The Court is prepared to state its findings of fact and conclusions of law. Before doing that, I would like to compliment counsel on both sides for what I regard as an exceptionally good presentation. The evidence was well marshalled and presented, I think, in about as clear a fashion as it could have been, considering the extreme complexity of the technological aspects of the case.

I am grateful to competent counsel on both sides who did an extraordinarily good job, I believe. I also think that the witnesses who testified in the case were competent, and their testimony is of considerable assistance to me.

My own view as to what art is involved here is that we are dealing with the art of playing games on cathode ray tubes by means of electronic circuitry. The state of that art immediately prior to the '480 invention, I think, was rather primitive. Despite the very impressive accomplishments of the computer games, they were, nonetheless, unsuited for the type of small scale game playing that is involved in the patents in suit and, indeed, is involved in all the accused games as well.

While I am aware of the great advances that

were made in computer technology between 1954 and, say, 1968,
it is nonetheless significant that those advances did not find
their way into the computer game that was demonstrated in
¹⁹⁶⁷
~~1968~~. We were still dealing with a very large computer,
and this was virtually on the eve of the '480 and the ⁵⁰⁸~~'285~~
invention.

The '480 patent, I think, is the pioneer patent in this art, and I refer to the art of playing games on a small scale, with the players participating in the game in an environment such as a home or someplace where a large computer would clearly not be available.

The '507 patent is, I believe, distinguishable from the prior art in one principal respect, and it is the respect which the plaintiff has urged in this case. This invention discloses a movable hitting spot which is controlled by the player and which, by striking a hit spot, can change the direction of that hit spot. Now, that is something new, I believe, something that is not shown in the prior art; nor do I find anything in the prior art which is even strongly suggestive of the development of such a thing.

The term "distinct motion" as used in the patent I think does not mean what some of the witnesses have indicated; namely, a predictable motion. Perhaps it could have that meaning, but it seems to me that the plain meaning of it is that the motion is different from the motion that characterized the hit spot immediately prior to coincidence with the hitting spot, such as a reversed direction or any kind of different direction

which is clearly imparted by the movable hitting spot. So I think that that description in the patent claims aptly describes what happens when the movable hitting spot strikes the hit spot.

This was a useful item. It was not simply a gimmick or a thrill. Rather, it made possible the wide variety of games which are playable under the '507 patent and which were not playable under the '480 patent or anything previous to the '480, all the so-called ball and paddle games, all of the bounce games, in which the player was directly involved as a participant who caused the bounce, as distinguished from simply turning a knob which set in motion a series of events over which he had no further control. All of that became possible for the first time with the disclosures in the '507 patent.

I do not regard the circuitry of the '507 patent as containing anything which is novel or patentable. I believe that the novelty and patentability reside entirely in this feature of the player-controlled hitting symbol, which coincides with a hit symbol and causes a distinct change of direction in the motion of the hit symbol, whether that change in motion be from a moving position or from a stopped position of the hit symbol.

Turning to the question of whether this novel feature of '507 was obvious, I am impressed by the testimony that the RCA people, who are in the television business and certainly had every incentive to develop television games and who definitely had the mechanical capability to do so with their large resources and their highly developed computer and technology of other kinds, did not do so, and, on the eve of the inventions in suit, were, as plaintiff suggests, traveling in a very different direction. I think that that fact is very persuasive. I find it very persuasive on the question of obviousness. I can really think of no kind of circumstance which would be more persuasive.

The direct testimony of people who say that something either was or was not obvious to them is not nearly as eloquent as the circumstantial evidence of what persons knowledgeable in the field either did do or did not do.

Another factor that I took into consideration on the question of the obviousness of the '507 invention is the fact that it was imitated by others, and that is quite clear from the evidence in the case of the Pong game. Here again Mr. Bushnell and his associates were highly sophisticated people in the

electronic field, and they even had a little bit of experience in a sub-art, games and machines of that kind. Yet there is no real evidence which I find persuasive that Mr. Bashnell had conceived of anything like the Pong game prior to the time that he saw the Odyssey game. When he did see the Odyssey game, what he did basically was to copy it.

Further in connection with the Pong game, there is uncontradicted evidence that the defendant Williams had possession of a Pong game and discussed with plaintiff the possibility of producing such a game. Here again if the game were so obvious, it seems to me that it would not have been necessary to predicate future activity so explicitly upon producing a game like this.

Furthermore, I think that the '507 patent, or at least the type of game disclosed by the '507 patent, has had considerable commercial success. While very few things are ever the sole cause of anything else, and one looks not for sole causes but for substantial causal relationships, there is no question in my mind that the thing that sold in the minds of the public was the bouncing feature of the so-called paddle and ball games. The fact that the other games not involving that concept have pretty well petered out is fairly good evidence of that.

Therefore, I find that the concept embodied in '507 has had very great commercial success. That is an added fact which, taken together with the other evidence I have mentioned, leads me to the conclusion that the invention of '507, that novel feature of which I have previously described, was not obvious at the time of this invention by plaintiffs.

I also find that there was no fraud on the Patent Office. I don't know why the '480 patent was not cited in the '507 re-issue application since by the time '507 re-issue was applied for, the '480 patent had issued. It seems to me it should have been cited, but I look to the question of whether there is here any evidence of an intent on the part of the plaintiffs to conceal '480, and I find no such evidence. Moreover, I am not persuaded that there was any substantial motivation for plaintiff to conceal '480. Despite Mr. Goldenberg's thoughtful analysis of the problem, I do not believe that that series of hypothesis that you suggested is really tenable.

Moreover, it seems to me that the patent examiner did know about '480. The evidence is not clear that he actually read it, but neither is there any evidence that he didn't read it, other than the circumstantial evidence that it was not mentioned in various places in the patent where it might have been mentioned and it may have been logical to

mention it. I am trying to say that this is a matter as to which I can see reasonable minds differing, this matter of whether the patent examiner was really aware of what was in '480, but I do not think that the evidence really dominates in either direction on it.

Since this does go to the issue of validity, on which the ^{DEFENDANT} ~~plaintiff~~ has the burden of proof, I find that the ^{DEFENDANT} ~~plaintiff~~ has failed to sustain the burden of showing that the patent examiner did not know about the '480.

There is another matter in that connection which I think is important. At least it is important to me. Perhaps it is not important in terms of the law, but I do not believe that had the examiner known of '480, assuming for a moment that he did not know of it, that his decision as to whether or not to allow '507 would have been any different than it was. I reached that conclusion for the same reasons I have already indicated. I do not feel that '480 anticipates '507. I do not feel that '507 is obvious in the light of '480. Therefore, it seems to me that we are dealing here with a possible failure to disclose something which, if disclosed, would not have resulted in different action by the patent examiner and, therefore, a square question of materiality is presented. I do not believe that '480 was material in the sense that it would have changed the patent examiner's mind.

In saying that, I realize that I can't read his mind. I can't be sure what he would have done had he known about '480. Yet it is my duty to do my best to determine what might have happened, and in doing that, I reached the conclusion that it would not have changed the patent examiner's mind.

Turning to the question of whether there is a presumption in favor of the validity of '507, I believe there is because I do not believe that there has been a failure to comply with those requirements which give rise to the presumption. I do not believe that the prior art which was disclosed to the patent examiner is any less relevant than the prior art which was not disclosed. It seems to me that the French patent in particular discloses those things which are claimed to have been denied to the Patent Office by the failure to disclose the Hurford patent and '480 and the computer games. So I think that the presumption does apply hereon.

On the other hand, I do not base my decision on the presumption. I base it on an affirmative finding that this patent is valid, and I make that finding without any assistance from the presumption and without basing my finding on the presumption. It is my view that the evidence clearly preponderates in favor of the plaintiff on the issue of the validity of Patent '507, quite aside from any effect of a

presumption, and when you add the presumption onto the scale, then the finding of validity, it seems to me, becomes that much more cogent.

Now I turn to the question of the 28,598 patent. I believe that '507 anticipates the '598 patent, and if it cannot be said that it anticipates it, I think that '598 patent is obvious in the light of '507. I say this because the only novel and possibly patentable feature of '593 is the visible wall. That wall existed in an invisible form in the '507. When one desires to play additional games, it is quite obvious that the way to do it is to make the wall visible. If you want to bounce a ball off a visible fixed symbol, make the fixed symbol that you already have visible. That is the obvious way to do it, and that is what is done here.

Was it done in a manner that required any technology that did not already exist? It was not. It required a different circuit, but there is not evidence here that that circuit was novel in any sense that would give patentability to the '598. There is testimony that the visual reproduction in '507 was unsatisfactory, that the lines were not as straight as they should have been, and this was rectified in '598 by the change in the circuitry. That is an improvement on '507, but it is not, in my view, a patentable improvement. It is simply using the same type of circuitry in a more efficacious way to achieve a better result.

Therefore, I find that the 28,598 patent is invalid by reason of anticipation by '507 or, in the alternative, by reason of obviousness in the light of '507.

Returning for a moment to the question of validity of '507, I do not believe that the evidence shows an offer to license of the product. I believe that what the evidence shows is some discussions about the possibility of a license, some very preliminary negotiations and discussions, certainly not amounting to an offer.

I need not reach the question of whether an offer to license would be a placing on sale because I find that there was no offer to license. I am not going to decide the question conditionally because I frankly have no knowledge of what the law is or should be on the question, and it would be simply a matter of my giving you my guess on what the law would be on that and I see no point in doing that on the particular facts as presented here.

Now turning to the question of infringement, I believe that the defendants' games do infringe the claims of the '507 patent to the extent that they contain or use a player-controlled movable hitting symbol which, when it coincides with a hit symbol,

causes a change in direction of that hit symbol. I believe that all of the defendants' games do exhibit that feature and, therefore, I hold that all of the defendants' games do infringe the '507 patent.

As to the various ways in which it is claimed that the defendants' games are different from the '507 patent, it seems to me that these differences are not sufficient to take the defendants' games out of the claims of the '507 patent, read in the light of the specifications and drawings. First, the use of digital instead of analog circuitry, it seems to me, is a difference which is not material. I regard analog and digital circuitry as two means which are interchangeable largely, which are equivalent, and which are, therefore, essentially the same means for achieving substantially the same results in substantially the same way.

Both of these methods involve measurement of time, it seems to me, because time is what is involved in these games. It is expressed variously as spatial and as counting, but in each instance what the user of the circuit is really attempting to do is to put an image on the screen in a particular time relationship to some other image or to some other component of the video signal.

One of the defendants' witnesses -- I forget which one -- conceded, as I recall, that the purpose for which one programs the computer to have it count in a particular way -- or rather, the purpose for which one presets the count -- is that one wishes the count to arrive at a particular point at a particular time. If one were to say that a mere change from analog circuitry to digital circuitry were to be a sufficient change to deprive an analog patent of protection, then it seems to me that every electronic invention would be fair game for anyone who simply used the reverse method of circuitry to achieve the same result. Had the plaintiffs, for instance, chosen to use the digital method, the defendants could as easily have used the analog method and claimed immunity by reason of having done that.

I listened with great attention and with, I hope, some modicum of understanding to the testimony on both sides as to the differences and similarities between analog and digital circuitry, and I am convinced, on the basis of my understanding of it, that these are substantially the same thing. They simply are different choices open to the designer of the particular device, and that choice is dictated by such things as economy and items of that kind.

As to the omission of the front end of the television set, I wish I had known before this afternoon that that very possibility was explicitly stated in the plaintiff's patent. I am perhaps excused in not having seen it myself before it was pointed out to me today, but all of the testimony that was taken here and all of the harraunging back and forth about whether or not the defendants' games incorporate a television receiver and what is meant by a television receiver would have been of considerably less moment to me, quite frankly, had I perhaps done my homework better than I did.

It is quite clear in the very language of these patents, and in at least one drawing in each of them, that you need not incorporate, in what is referred to in the patents as a television receiver, that part of a television set which is used for the reception of broadcast television signals, and there is nothing in the claims of the patent which excludes a television receiver without a front end, a set of the kind described in the stipulated glossary of counsel.

Even if the patents did not make it clear in express terms that the front end is not an essential teaching of the patent, it seems to me that mere common sense dictates the same result. I had tentatively made up my mind, even without knowing that the patents contain

these express statements, that when you are talking about a patent on a television game and a receiver of television signals in connection with that game, you should not read the patents in such a way as necessarily to include as an indispensable part of the patent those features of the television set which have nothing whatever to do with the generation of the TV game on the receiver.

Therefore, I find that the omission of the front end of the television set is immaterial.

Now, as to whether or not the influence of the direction of the ball or the hit symbol in defendants' games by the place on the paddle where the ball strikes is a material difference, it seems to me that that is simply another way of a player-controlled movable hitting symbol. It comes into coincidence with a hit symbol and changes the direction of that hit symbol in a distinct way, and I part company with one of the defendants' witnesses, who said that that feature of the defendants' games does not meet that particular claim of plaintiff's patent because you can't predict with any precision just where the ball will go when it strikes some portion of the paddle, because I don't think that "distinct" means "predictable". I think it means, as I said before, simply a motion that is different from the motion characterizing the ball immediately before the coincidence.

I believe those are the differences which have been urged as distinguishing the defendants' games from the plaintiff's patents.

If I have overlooked anything as to which I should make a finding of fact, I will ask counsel to

call it to my attention, and I will make a finding on it.

I do find that the defendants' games infringe the plaintiff's 1907 patent.

Now, that completes my statement of my findings of fact and conclusions of law. If counsel wish to have me enter a written set of findings, which will be more specifically tied in to the numbers and other items of evidence, exhibit numbers, and that type of thing, which have been introduced here, you may prepare it and submit it.

What is your pleasure?

MR. ANDERSON: Perhaps, your Honor, it would be appropriate to read the transcript and have the opportunity to make any suggestions for supplemental findings or corrections.

That would be my suggestion.

I believe your Honor did misspeak one time and say "plaintiff" when you meant "defendant."

MR. GOLDENBERG: I think that is correct.

THE COURT: I frequently do that. I am surprised that I did it only once.

MR. GOLDENBERG: It was in connection with your discussion of fraud on the Patent Office, I believe.

THE COURT: We will straighten that out.

All right. I wish in a case that was as well presented at this one that there could be two winners, but I guess that is not possible.

There remain issues to be tried in this case?

MR. GOLDENBERG: That is correct. A claim that the patent has been misused and is unenforceable. That was severed, and discovery was stayed in connection with that.

I think for the moment, if it could be put aside, I would want to discuss that with the client. I don't know if there is any opportunity for discussion with the plaintiff in connection with that --

MR. ANDERSON: I am sure there is.

THE COURT: I will leave it for you gentlemen to come in within a reasonable time and at least discuss it.

What you might do is check with Mr.

Martinez and have him put you on a status call, say 45 days from now, or something in that area.

MR. GOLDENBERG: That is very fine, your Honor.

THE COURT: And we will discuss where we go from there.

Thank you.

(Which were all of the proceedings
had in the above-entitled matter
on the day and date aforesaid.)

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IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE MAGNAVON COMPANY, et al.,

Plaintiff,

vs.


CHICAGO DYNAMIC INDUSTRIES, et al.,

Defendants

No. 74 C 1030
and
74 C 2510

CERTIFICATE

I HEREBY CERTIFY that the proceedings had in the above-entitled cause before the Honorable JOHN F. GRADY, one of the Judges of said court, on November 4, December 27, 28, 29, 30, 1976, January 3, 4, 5, 6 and 10, 1977, were reported in shorthand and later transcribed into typewriting under my direct personal supervision; and that the foregoing pages, numbered 1 through 2035 are a true, correct and complete transcript of the official shorthand notes so made as aforesaid.


Claude W. Youker Jr.
Official Court Reporter
United States District Court
Northern District of Illinois
Eastern Division